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Montana School Health Curriculum Guide

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And Environmental Sciences

INTRODUCTION

The preparation of this curriculum guide was initiated as a result of a need to update material included in the previous **Guide for the Montana School Health Program** as well as to provide a suggested format for health education activities.

Although the end product represents a complete format for a health curriculum, each teacher will be expected to modify the material to suit his or her particular class and the school system within which he or she is functioning.

The reader should understand that the research for and the composition of this manual was a completely cooperative effort, in which each member of the Bureau of Health Education staff contributed in some measure. In order that we did not tend to "reinvent the wheel," we have utilized researched material when we felt that we could not improve upon it. Staff members in the Office of the Superintendent of Public Instruction reviewed and approved the material in the Guide.

Special recognition and appreciation goes to Mr. Morris Barrett, M.P.H., for his excellent **Health Education Guide: A Design for Teaching,** which has served as a major reference for us in the preparation of this guide. Material has also been drawn from curriculum guides developed in Pennsylvania, New York, Colorado, Ohio, California, Nebraska and North Dakota.

This curriculum guide has been designed to assist classroom teachers, curriculum coordinators, and other administrators in developing a relevant, comprehensive and progressive program of health instruction from kindergarten through grade twelve. It is hoped that the resulting program will help each pupil to reach the utmost possible level of health. Further, the format which was designed around a conceptual approach will provide the necessary flexibility within the curriculum to strengthen decision-making ability among students. Through this model, behavioral change might be

more readily and positively effected. The presentation of health content in the manner of building it around certain health concepts will allow new research to be integrated into the program as it becomes available.

The units included in the guide were designed to encourage students to develop positive attitudes toward health. The responsibility for this development is, of course, with the teacher. These attitudes may very well be more valuable to the individual as well as to society than the mere accommodation and assimilation of basic facts in that the former might very well spark interest and therefore independent learning by the student.

The concepts are listed as a general format and are not intended to be absolute barriers or roadmaps within the curriculum. The grade designations need not be followed closely as they appear in the context, i.e., material listed in a third grade section need not necessarily be taught there. It is the intention of the writers that the guide be employed with an attitude of flexibility.

Professor C. E. Turner in his book, **Planning for Health Education in Schools** discussed a number of principles which he felt should underlie health education. He listed the ultimate objective of health education as the promotion of healthful living. Because the health of the child is influenced primarily by what he does, not by what he knows, health education should be behavior-centered. The pupil should think of hygiene as associated with conduct and not with a series of facts to be memorized.

Health education should, insofar as possible, be positive, not negative. Emphasis can just as easily be placed on what to do rather than on what not to do. Health practices of the teacher are important in influencing health behavior of students since conscious and unconscious imitation of persons whom they admire is a powerful force in shaping child behavior.

EVALUATION

Essentially, evaluation is quality control of the processes and outcomes of an educational program. In the health education field, no further general definitions are necessary, but it is important to understand that broader and more objective instruments should be employed in order that behavior of the student is measured rather than just his ability to recite at-hand facts and figures. Valuable as evaluation is, we should remember that everything in life which has value is not measurable in terms of numerical units. Many values arising from the school health program cannot be measured quantitatively.

Obviously, the teacher can often see an improvement in the mental and physical health of the child which cannot be recorded on an objective health index. School health also makes a contribution to the education and health of the community at large. This cannot, of course, be measured in terms of the program itself. Attitudes are difficult to measure, and yet the contribution of the school to the development of sound health attitudes is one of its most important services. Health education makes many more contributions to vigor, efficiency, contentment, cheerfulness and community health than we could ever hope to measure.

Any educational program should seek to answer at least four basic questions. They are:

1. Why? — What needs can you cite that justify the existence of this educational program?
2. What? — What are your objectives in the program? i.e., what objectives will the program accomplish to meet the need under Why?
3. How? — How will you have the program function to meet its objectives?
4. How will you know? — What kinds of information should be gathered so that you know if the How has met the What for the Why?

Perhaps the single most important element of the

effective evaluation program is the stating of precise, meaningful behavioral objectives which can be easily measured. Every educational program plan, whether written or not, makes three kinds of assumptions: (a) the expenditure of resources as planned will result in the performance of planned activity, (b) each activity, if properly performed, will result in the attainment of the behavioral objective with which it is linked, and (c) each behavioral objective must be accomplished before the next one is reached and, if all behavioral objectives are attained, the program objective will be attained.

The end results of all good education are thorough learning and useful and effective application. The pupils must know the multiplication table before they can apply it; they must have something to communicate and must know how to communicate it before they can make themselves understood by others; they must know what is good before they can be good. But, knowing all this is of little value unless students make good and effective use of their knowledge for their own welfare and for the well-being of others. All efforts of evaluating the worth of each pupil and of the year's work, therefore, should involve assessing the effectiveness of learning the fundamentals of knowledge and the readiness and competence of the learner in applying what he knows to useful ends.

Student assessment is, however, only one phase of the total evaluation process. Evaluation must involve the self-evaluation of the teacher as well as a keen scrutiny of the materials used, and the environmental conditions under which instruction takes place. Involvement in such comprehensive evaluation procedures should include not only the teacher, curriculum coordinator and administrator, but students, parents and community agencies as well. It seems totally inadequate that the teacher alone attempt such a task since he cannot possibly view the program from the many vantage points necessary for thorough program review and evaluation.

HUMAN GROWTH AND DEVELOPMENT

Rationale for Unit: There is general agreement today that a great need exists to have children become aware of the significance of their personal development. In this, most educators, psychologists, churches and parent groups concur. The school is the only institution which receives all children over a prolonged period. It has the challenging opportunity and obligation to supplement and contribute to their education, and, in some instances, to affect the sometimes distorted view of life they are receiving from television, movies and certain perverted literature.

This unit was prepared with the knowledge that the study of human growth and development is a comprehensive and extensive study which should begin in the home and be supplemented by the schools from elementary through senior high school. Pupil participation in the suggested activities should help to produce desirable social and moral attitudes, practices and personal behavior.

The unit not only includes activities that can lead to a knowledge of physiological and psychosexual facts of reproduction and the health concerns of venereal disease, but also includes activities that can help children to develop positive attitudes and practices that can lead to a meaningful understanding of one's self, a mature adulthood, and a happy family life.

Further, this unit is intended to help satisfy the children's desire to understand the biological man, but not to the exclusion of learning the meaning of character and value judgments as they relate to personal behavior and an understanding of self-discipline and emotional control.

Basic Concept of Unit: Human development involves personal growth, as well as the complex drives associated with becoming a mature adult.

CONCEPT	SUGGESTED ACTIVITIES
Kindergarten — Third Grade Level	
There are similarities of growth in living things.	Illustrate rapid growth by having students observe a day-old chick. Size will increase greatly during the first few days of its life.
	Use fertilized eggs and observe incubation and early growth of chicken. Use plastic models of growth of chicken.
	Show students illustrations of animals and humans. Have them begin to identify similarities of growth.
	Growth of a variety of plants and animals should be observed in the classroom. Planting of a variety of seeds should be observed in the classroom. Planting of seeds by each child will provide stimulation for observation of growth.
Young must receive parental care to survive.	Use day-old chicks or small animals and discuss the necessity of feeding and cleaning up body wastes.
	Discuss the parental care of babies in their own homes.
Bathroom sanitation is essential to good health habits.	During orientation to classroom procedures, each child should be shown the toilet and washing facilities, and the teacher should discuss the reasons for elimination and essential sanitation habits.
	Discuss the importance of habits of neatness, sanitation, and courtesy to others in the use of the bathroom.
Strangers may be dangerous.	Dramatize the proper reaction on the part of children to offers made to them by strangers.
	A discussion about the policeman being the students' friend may be desirable at this age. A visit to the classroom by a policeman might be helpful. Show an appropriate filmstrip.
Living things reproduce their own kind.	Have students plant seeds of varying kinds and observe their growth. Observe the likenesses of each species and compare rates of growth and size of plants.
	Use transparencies or pictures of adult animals and their young, including the human family.
Living things reproduce in many ways.	Use transparencies picturing growth from the embryo stages to maturity.
	Grow plants from seeds, tubers and bulbs.
	Discuss the transparencies or illustrations, showing the cycles of the frog, pumpkin, chicken, wolf and human.
	Interested students can get pond water and grasses and add distilled water to cultivate paramecia and other microorganisms. Observe asexual reproduction.
Young animals have a need for home, food and parental care.	Dramatize the mother and father taking care of a newborn child in the home.
	Have children collect pictures showing the different kinds of homes used by animal and bird life.

Chart the developmental stages of different kinds of animal life (when did they first walk, feed themselves, leave their homes).

Discuss the reasons for the various amounts of time needed for full development of different kinds of animal life.

Fourth-Sixth Grade Level

Puberty is a time for change in boys and girls.

Discuss physical, chemical (hormones) and personality changes that can take place during puberty. Reasons for the changes and why they are necessary for maturation should be stressed.

Show an appropriate movie on growth and development.

Boys and girls differ in skeletal and muscular structure.

Observe pictures of the male and female skeletal and muscular systems to illustrate the differences and reasons for these differences.

Emphasize how the difference in body structures is related to different roles in life.

The menstrual cycle is a natural event indicating the female body has reached one area of maturity.

Discussion, lecture-handled by a person who is competent, confident and understanding.

Select and show current film on menstruation. Prepare class for film and provide for discussion and follow-up afterwards. Invite mothers to attend.

Present the process of menstruation to boys as a separate group. Use an appropriate film.

Seventh-Ninth Grade Level

It is important for us to know ourselves.

Have each class member list what he thinks would be important to know about himself. Make a listing of items stated by students and discuss their relative importance.

Have class list the characteristics of a healthy personality.

Have students prepare a self-evaluation check list.

Many factors contribute to the formation of personality.

Formulation by the class of a personality rating chart listing all the desirable characteristics and traits of a healthy personality.

Develop student reactions to other individuals who do not act, look or believe as we do.

Discuss how attitudes of acceptance are expressed (facial expression, quality of voice, avoidance, friendliness).

Demonstrate through role-playing how persons tend to react in a positive manner to attitudes of friendliness and courtesy and in a negative manner to expressions of hostility.

Each of us accepts himself and others as individuals with varying capacities and abilities for living and working together.

Have students develop rating charts of traits that make good friends. Compare charts and individual evaluations.

Discuss the difference between "belonging" and being "on the outside" of the group.

Discuss social skills necessary in intergroup and interpersonal relationships.

Maturity involves physical as well as personality changes.

Have each student develop a list of the basic emotions and analyze how these emotions affect his life.

Stimulate students to discuss the extent to which they should be involved in family decision making.

Discuss physical appearances of an individual at different developmental stages in one's life span.

Examine the causes for change in physical appearance, e.g., voice, growth of hair on face of boys, growth of hair on pubic and axillary regions on males and females.

Present an appropriate film or filmstrip showing the developmental characteristics of boys and girls.

Discuss the term "growing up" as it relates to such terms as preadolescence, adolescence and maturity.

Describe and discuss the changes that take place in boys and girls during adolescence.

Develop special study projects related to glands, glandular upsets, and other phases or causes of changes in growth and development.

Establish a question box for unsigned questions related to the special problems that often concern adolescents.

A healthy moral adjustment to adolescent changes is essential to individual development.

Develop hypothetical situations in which moral judgments would be involved. Have the students investigate solutions to the problem and justify their choice. Follow with a discussion.

Critically examine experiences or situations where someone had to make a judgment as to what is right and wrong. Discuss the validity of the choice made and its consequences.

The many physical changes occurring in our bodies, as well as the intellectual, emotional, social and spiritual, are processes for preparing the individual for parenthood.

Pretest to evaluate class knowledge of human reproduction.

Show appropriate film or filmstrip on human reproduction. Prepare follow-up discussion period.

Relate physical changes to accompanying changes in behavior.

The human fetus develops in a unique manner; normal birth occurs when the fetus is developed sufficiently to survive.

Show film or filmstrips to illustrate human fetal development. Discussion should accompany each visual presentation.

Discuss heredity and the factors involved.

Discuss the care of the newborn baby and the effect which the environment and the attitudes of adults, particularly parents and other members of the family, have on the infant.

Arrange a visit from a physician to explain and discuss the growth of the fetus, and the birth process.

Mature judgment concerning dating can lead to good discussions concerning a marriage partner.

Collect clippings from the newspapers and magazines about current dating attitudes. Develop opinions about the materials you have gathered and prepare to substantiate these opinions.

Most individuals have dating experiences on various levels of maturity. According to their own personal maturity and the influence of the community, these dating experiences may differ.

Study and report on the dating customs in foreign countries.

Present a film or filmstrip on dating. Form discussion groups to evaluate or comment on the visual.

Make a survey of the students in your school on factors thought important in choosing a good date. Prepare a report and present it to the class.

Have students rate themselves as superior, above average, average, below average, or low in the following evidences of social and ethical maturity: (Each student should indicate why he is rating himself as he is by citing one or more specific examples of his own behavior which would justify this rating.)
A. Courtesy B. Conversation
C. Attitudes toward others, etc.

Have boys and girls develop separate date rating charts. Compare and discuss.

Role-play situations involving dating etiquette.

Select two teams to debate the question: "The pros and cons of going steady."

A good moral decision creates trust, confidence, and integrity in relationships.

Develop a chart of moral judgments as a self-evaluation technique.

Compare past standards with present standards in our society.

Have students formulate standards for relationships between boys and girls.

Discuss teen-age marriages.

Several infectious diseases can be transmitted during sexual contact.

Present appropriate film or filmstrip on venereal disease.

Discuss syphilis and gonorrhea — causative agents, modes of transmission, incidence of infection, consequences of infection, treatment, cure.

Tenth-Twelfth Grade Level

Selecting a marriage partner is one of life's most important choices.

Discuss the concept of engagement: "Today's engagement is viewed as a time to know and understand each other rather than a promise to marry."

Examine the purposes of an engagement period.

Analyze the statement: "A broken engagement is better than a bad marriage."

Have students list factors they believe would represent a danger signal during engagement. Compile and discuss.

Love is more than physical attraction to one another.

Discuss: "Love does not come as a sudden answer to life's basic needs; it is developed gradually through years of interactions with other people."

Compare love with infatuation.

Discuss: "Learning to love is certainly one of the most important, and can be one of the most difficult, of all learning experiences."

Make a list of the personality traits you consider most important in the person you would marry. Compare your list with others in the class.

Discuss: "How does our American culture influence mate selection?"

Society supports special ceremonies and laws which mark the change from courtship to married life.

Review Montana laws concerning marriage; reasons for the laws.

Have students write a short paper describing the differences between civil and religious ceremonies.

Assign students various countries and have them write a paper on different marital customs.

An effective family exhibits certain desirable characteristics.

Ask the class to develop a list of responsibilities, achievements, aspirations and future roles usually expected of teen-agers by the family.

Ask class to discuss:
a) one family is like all other families
b) no two families are alike
c) what kind of family do you want to establish in the future?

Develop arguments to refute or support the contention that people should receive special preparation for marriage.

Evaluate the statement: "I don't plan to get married for ten years; I'll read up on marriage when the time comes."

Systems for intellectual and emotional communication need to be established early.

Invite a marriage counselor to speak to the class on communication in marriage.

Appoint a committee to prepare three skits showing trifling incidents that may cause quarrels between a newly married couple. Following each skit, ask the class to select the points in each where the trouble began. Then have the actors play the skits again, this time either avoiding or solving the problems that arose in the first one.

Discuss how people inadvertently stop one another from communicating by lack of understanding or inappropriate action. A marriage counselor may give concrete examples of this problem.

Beginning families need to establish ground rules for routine married life.

Debate: Spending large sums on a permanent home and working a few years to buy furniture.

Debate: Buying a home vs. renting. Have students report on the cost of the interest on a home loan.

Have the students use the following steps to budget making (class may decide on income, household expenses, e.g., gas, water, lights, or consult parents for realistic figures).
a) keep a careful record of family expenses for a month
b) list your fixed expenses and obligations
c) list your household expenses
d) list your personal expenses
e) set aside an emergency fund
f) set aside a small amount to be saved

Debate purchasing insurance vs. putting the same amount in a savings account or investment program.

Have students interview parents on special consumer problems they have encountered.

Analyze various types of advertising as to the psychology behind them.

Have class compile a list of ways that consumers may get information.

The intelligent study of divorce is desirable for developing attitudes and understanding that help to build effective marriages.

Invite a lawyer to speak on legal causes and resultant implications of divorce.

Discuss: "People fail, not marriages."

Have class discuss the statement: "The best way to solve marital problems is to change yourself, not your spouse."

Have a committee survey the community resources available for helping families in a crisis situation and report to the class.

Have the class list some of the effects of divorce on children, and discuss how some of the effects could be minimized.

Our society recognizes the need to protect the unity and strength of the family.

Invite a lawyer to explain the protection the laws give the members of the family from birth to death, the state's concern for the family as a unit, and for the welfare of each member. Have him review briefly the laws governing family property and rights, laws for the protection of the children, the legal responsibilities of the husband and wife toward each other, toward their children, and toward their own parents. Marriage and divorce laws and laws concerning adoption should be explained.

Examine "values" of the American family.

Discuss: "Contributions of religious faith to family values.

A jointly acceptable philosophy of life gives unity to a marriage.

Discuss decisions couples must make regarding:
a) church attendance
b) political affiliation
c) social groups to join
d) domestic problems

Develop a theme on your philosophy of life and the kind of person you would like to marry.

Define and discuss the differences between disagreements, discussions, and arguments.

Discuss: Will marriage be a means for self-expression or self-denial? Self-control and tact are not inconsistent with honesty.

The family unit is the most socially approved agency for the procreation of children, and its function should be understood by both parents.

Have someone visit and report on health department baby clinics, parenthood classes, and prenatal clinics.

Invite a physician to discuss prenatal care to prevent birth defects, and stress importance of current nutritional status of the girls in relation to future role as mother. Emphasize follow-up care of the baby after delivery.

Discuss the dependency of infants in their early years on parents, and as a result of such dependency, restrictions placed on a couple.

Have the class list how a child can accentuate the personal differences between husband and wife. List the rewards of parenthood.

Good parenthood demands an appreciation of children's needs.

Invite a parent to discuss responsibilities and rewards of parenthood.

Discuss:

a) "self-understanding is an important requirement for good parenthood"

b) "the child's feelings of status in the world are primarily determined by the emotional atmosphere of his household"

c) "children benefit more from the forgiveness and patience of loving parents than they do from the knowledge of psychologically well-informed parents"

d) "does a parent rule by divine right"

e) "consistency is probably the most important ingredient for good discipline; consistency should exist between parents."

Have students list ways they share their lives with their parents. Discuss desired changes in activities or responsibilities that are shared.

Stimulate students to react to the statement: "The imposing of one's will upon another must be tempered with love, empathy and understanding."

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FAMILY LIFE RELATIONSHIPS

Rationale for Unit: This unit provides for students to explore both the changing role of the family in present-day America as well as the functions of the family. These functions are essential to the survival of the individuals who make it up and of the society of which it is a part. Generally, the functions include the satisfaction of personal drives and desires, perpetuation of man, transmission of the culture and personality development of children. Students should be given opportunities to develop attitudes, knowledge and skills which will enable them to contribute effectively to their present and future family life.

This unit correlates well with Human Sexuality, Growth and Development and Mental Health.

Basic Concept of Unit: The family is the basic social institution involved with the responsibility for providing its members with experiences which they need for maximum physical, mental, social, emotional and spiritual development.

CONCEPTS

Kindergarten-Third Grade Level

SUGGESTED ACTIVITIES

Each of us is a member of a family.

Develop family awareness by having students color, cut out, or paste family member figures in a scrapbook. Discuss with children the many different family structures that we live in.

Discuss some of the differences there are in families, such as size and types of members.

Sharing helps to make the home a happy place.

Have children compile a list of things at home that belong to them and another list of things which belong to everyone in the family. Discuss the relationship between the two lists. Encourage pupils to role play ways in which family members may share with one another.

Ask the children to tell about their household responsibilities and how they contribute to family tasks.

Doing things together helps strengthen families.

Plan with the children holiday celebrations, picnics, and vacations. Suggest that they discuss similar plans at home.

Discuss with the children plans involved in preparing for company:

Draw and display pictures by students of families doing things together. Suggest each student discuss or tell about his picture.

Children make important contributions to the family.

Make a surprise gift for the parents or the home, possibly a project with the art teacher.

List the home duties that young children may be able to assist with or assume.

Discuss ways children can help out without having some specific job assigned to them.

Discuss what may happen when duties are not carried out.

There are similarities and differences in family life in other countries.

Read about and discuss the ways in which family life is different in foreign countries. Have the class discuss personal experiences.

Invite exchange students (if available). Develop a bulletin board display of people of other countries, stressing differences.

Ask students to bring in various cultural articles and objects of different nations.

Taste foods and play games appropriate to other countries.

The home contributes to the perpetuation of our culture.

Investigate the history and heritage of your community.

Discuss our culture compared to that of other countries.

Suggest pupils ask grandparents to tell about some of their childhood experiences relating to the family.

The family should foster the fullest development of each individual family member.

Have a talent or hobby show at school.

Initiate creative activities in class to explore individual potential and family interests.

Fourth-Sixth Grade Level

Family unity and pride develops through individual contribution and interaction.

Family problems can be solved, when all family members work as a unit.

Family patterns differ.

The independent nature of family life requires that each member develop a sense of responsibility.

We feel more secure within the family when we make decisions and accept the consequences.

Changes that occur in daily living affect family life.

The family should foster the fullest development of each individual in the family.

Leisure time activities affect the development of a wholesome family.

The moral and spiritual values prevailing in the family group help to shape family relationships.

Watch for special aptitudes and skills which can be developed and channeled into constructive use.

Encourage children to participate in home activities. Establish ways in which each child can take part.

Provide an opportunity for the pupils to discuss highlights in family life.

Develop ideas as to how a family can adjust to changes in the family pattern such as: arrival of a new baby; illness; or a working mother.

Discuss the effect which the death of a pet may create.

Discuss family patterns in other countries and compare them with those in America.

Make drawings showing the differences between family patterns in earlier times compared with today.

Share true experiences of home tasks. Prepare a chart evaluating these home responsibilities. Set up with the group a good housekeeping code and a schedule of duties in the classroom.

Ask the students to discuss some experiences in which the consequences of making right and wrong decisions were recognized.

Plan a debate on "Parent Selection of TV Programs" vs. "Children's Selection of TV Programs."

Discuss the natural changes that occur in everyone's life. Some examples are new members, deaths, moving, illness, divorce, remarriage, and loss or change of jobs.

List things that parents may do which show love; list what students do for other family members to show they love them.

Discuss how the talents of each family member contribute to the family structure.

Examine qualities admired in other people.

Arrange a bulletin board with pictures of people expressing different moods. Discuss and explain how moods can change.

Teach the children games that can be played while traveling, on rainy days, and on special occasions. Make a list of activities for a child to entertain himself at home.

Plan with the class an indoor field day.

Encourage the creative use of various materials such as old Christmas cards, drinking straws, colored paper, and cloth.

Plan puppet plays about family life.

Encourage the class to prepare a seasonal basket for a family in need.

Provide opportunities to cooperate with local organizations in their benevolent programs.

Arrange for voluntary participation in a community project, e.g., paper collection, etc.

Seventh-Ninth Grade Level

Family life activities change according to environment, age of children and societal conditions.

Many factors, such as industrialization, urban development and surburban expansion have brought about changing family patterns. Discuss these changes with the class and conduct class discussions on the difference between home obligations of urban and rural youth.

The school and home are responsible for the health of family members.

Have students develop their own health history record.

Have students pantomine accidents that frequently happen in homes. Suggest preventative measures. Invite community resource persons in to talk on different facets of health and safety.

As family members grow and mature, their responsibilities change.

Prepare reports on the responsibilities of different members of the family. Include economics, discipline, and chores.

Develop a bulletin board identifying a teenager's responsibilities in the home. Use to stimulate discussion. Analyze with students their own changing roles in the family group as they get older and mature. Involve students in role playing situations of how adolescents can earn privileges, respect and independence through demonstration of self-control, responsibility, pride, and dependability. Discuss the process of maturation and how one develops responsibility. Examine the question: "Are we always subject to answer to someone for our actions?"

An individual's role and functions change with his position in the life cycle.

Set up committees to study roles of individuals at the various steps of the life cycle. Report and stimulate a class or panel discussion.

A person's personality and social development are primarily influenced by the family.

Discuss acquired habits, idiosyncrasies, hobbies, attitudes, diet and values as family traits.

Social problems of youth may be directly related to the home.

Develop a panel discussion to examine relationships of the family unit to specific conditions such as delinquency, misuse of alcohol and drugs, smoking, and sexual experimentation outside marriage.

The social dating custom affords young people the opportunity to understand each other as well as themselves.

In discussion groups, formulate lists of likes and dislikes of the opposite sex. Discuss the final lists.

In mixed groups, discuss the influence of social pressure on determining dating patterns. Discuss the parents' role in determining when the individual starts dating, curfew hours, and places to go.

Set up committees to discuss and plan dating activities within a set budget and certain time limitations.

Family living experiences should present opportunities for all members to develop into mature, responsible adults.

Have a discussion session in which students list their weaknesses and strengths. Suggest each student list those traits he would like to develop further. Cite examples of people who have exhibited a sense of responsibility by taking a stand on some controversial issues.

Have each student list instances when he stood alone for or against a particular issue. Discuss the feelings each experienced.

Introduce and discuss appropriate behavior for different types of social situations.

Use class incidents to illustrate the importance of consideration for others.

Tenth-Twelfth Grade Level

The status of the family in our society is one of change and mobility.	Discuss the effects of urbanization, growth of suburbs, technology and occupational transientness on family living.
	Discuss the changing attitudes of the family toward the care of the elderly, material things, recreation and various life styles.
The success of the family as a social institution is the responsibility of the individual.	Have the class contrast the functions of the family in our country with those of other countries.
	Discuss the responsibility of parents in respect to family health, economics, recreational, and moral and spiritual influence.
The family is the most influential force on the behavior, attitudes and personality of individual members.	Investigate and discuss how the family influences attitudes toward respect of property, law, education, politics, religion and sexuality.
	Discuss or debate various family techniques or measures of discipline and how they relate to the individual's lack of self-restraint or his control of behavior.
Family patterns and current social problems are many times interrelated.	Invite a social or welfare worker to discuss how families can help prevent divorce, crime, emotional illness and alcoholism.
	Investigate and research for discussion the incidence of venereal disease, illegitimacy and early marriage in relation to the family.
Family social and economic status, standards, attitudes and cultural values influence the selection of marriage partners.	Research and report on current marriage customs in contrast to customs practiced in other countries.
	Discuss the success and failure of interfaith and inter-racial marriages involving expected and probable obstacles which may be encountered.
	Research and discuss the social, economic and educational factors which may influence the selection of a marriage partner.
One's formative environment and experiences contribute strongly to the character and values he brings to marriage.	Discuss what attitudes and values are, how they develop and what forces mold them.
	Have the students report on their concepts of dating, courtship, pinning, engagement, wedding, honeymoon, marriage and family.
The success or failure of marriage is influenced directly by various factors.	Invite a marriage counselor, minister, priest or rabbi to discuss factors which contribute to unhappy marriages and divorce, as well as ingredients of a happy, successful marriage.
	Examine and evaluate the importance of common interests, maturity, health, goals, values and religion as a foundation for a successful marriage.
Knowledge, comprehension, deference of human reproduction, prenatal and postnatal health problems and the birth process is a shared responsibility of parents.	Have the class discuss the influence of economics, religion, health, fertility and sterility upon family planning.
	Invite the school nurse or physician to discuss prenatal and postnatal health environment of the mother. Include development of the embryo, fetus and infant.
	Invite an obstetrician to discuss the process of childbirth and the different methods of childbirth. Include, when appropriate, the concept of birth control and the best age for parenthood from the physical, emotional and social point of view.

Family planning is a world concern.	Research the factors that would tend to modify the statistics published yearly concerning the national birth rate. Research and report on what other countries with large populations are doing to provide for their people. Discuss possible effects of family planning and increased productivity on world health.
The family is a tangible link between the generations of mankind, past, present and future.	Conduct a discussion in which the family is treated as a group, a social entity, a cultural pattern, a legal entity, an economic arrangement, a political fact and a biological process. Discuss the effect of matriarchy and patriarchy on the various cultures in which they were significant.
The family contributes to the personal needs, aspirations, desires and drives of the individuals who make up the family.	Evaluate the various reasons why individuals want to raise a family. Discuss marriage as the birth of a family and the normative pattern of sexual adjustment within most societies.
The family perpetuates mankind.	Discuss the biological facts that help to explain why the institution of the family has developed as it has (the long period of helplessness of the human infant, love, need, etc.)
The family is the process through which the way of living in a society is transmitted from generation to generation.	Discuss the role of the family in educating its members. Discuss the subtle influence of folkways, customs, mores, taboos, and laws on individual conduct. How has the family influenced this? Examine the role of the family in establishing prejudices and ideals?
The family contributes to the personality of the child.	Discuss the stages through which an infant becomes acclimated to family life. Form committees to examine the contributions of the family group to the physical, psychological, spiritual, intellectual, and emotional growth of its members.
The relationships within a family constantly evolve.	Discuss the statement: "A family is never a static institution." Examine family equilibrium in terms of needs, hopes, interests, traditions, and interpersonal relationships. Discuss factors that keep a family in equilibrium, e.g., identification and imitation.
The American family has established itself as a basic symbol of a democratic society.	Consult with the Bureau of Records and Statistics to learn of the changes in the percentage of the population living in families, number of persons per household, number of married couples, number with homes, etc. Compare trends in age at time of marriage and family size. Compare to the national stature; war, peace and depression. Make a comparison with other countries. Research with students the effect of polygamy, monogamy and group marriages on the life of nations. Research and discuss the influence of asceticism of the American way of life. Compare national birth rates with South American countries, India, China, Russia and others.

FAMILY LIFE RELATIONSHIPS

Selected References and Resources

The following selected references and resources are suggested to supplement and enrich this unit.

American Association for Health, Physical Education and Recreation, 1201 16th Street, N.W.
Washington, D.C. 20036

American Social Health Association, 1790 Broadway,
New York, New York 10019

Child Study Association of America, 9 East 89th Street,
New York, New York 10028

"Free & Inexpensive Learning Materials"
Division of Surveys and Field Services
George Peabody College for Teachers
Nashville, Tennessee 37203

"Family Life Literature and Films"
An Annotated Bibliography
Minnesota Council on Family Relations
1219 University Avenue Southeast
Minneapolis, Minnesota 55414

Montana State Dept. of Health and Environmental Sciences Film Catalog
Cogswell Building
Helena, Montana 59601

Guidance Associates
Pleasantville, New York 10570

E. C. Brown Trust Foundation
3170 S.W. 87th Avenue
Portland, Oregon 97225

Planned Parenthood Federation of America
515 Madison Avenue, New York, New York 10022

Public Affairs Pamphlets, 381 Park Avenue South,
New York, New York 10016

Science Research Associates, 259 East Erie
Chicago, Illinois 60611

Sex Information and Education Council of the United States
1855 Broadway, New York, New York 10019

National Council on Family Relations
1219 University Ave. S.E.,
Minneapolis, Minnesota 55414

Records and Statistics Bureau
Cogswell Building
Helena, Montana 59601

HUMAN SEXUALITY

Rationale for Unit: There is general agreement today on the part of most educators, counselors, psychologists, churches and parents that a great need exists to have children become aware of the significance of their sexuality. The school is the one institution which receives all children over a prolonged period. It has the challenging opportunity and obligation to supplement and contribute to their education, and, in some instances, to affect the sometimes distorted view of life they are receiving from television, movies and certain literature.

This unit was prepared with the belief that the study of human sexuality is a comprehensive study which should begin in the home and be supplemented by the schools and other sources from elementary through high school.

The unit not only includes concepts and activities that can lead to a knowledge of physiological and psychosexual facts of reproduction, but also includes concepts and activities that can help children to develop positive attitudes, and practices, that can lead to a meaningful understanding of one's self.

Further, this unit is intended to satisfy the children's desire to understand the biological man, but not to the exclusion of learning the meaning of character and value judgments as they relate to sex and understanding of self-discipline and responsibility.

This unit correlates well with Family Life Relationship, Growth and Development and Mental Health.

Basic Concept of Unit: To acquire a maturing self-image which enables the individual to live out his sexuality in a responsible and creative manner.

CONCEPTS	SUGGESTED ACTIVITIES
Kindergarten — Third Grade Level	
There are similarities of growth in living things.	Illustrate rapid growth by having students observe a day-old chick. Size will increase greatly during the first few days of its life.
	Use fertilized eggs and observe incubation and early growth of chicken. Use plastic models of growth of chicken.
	Show students transparencies or illustrations of male and female child. Have them begin to identify body parts.
	Growth of a variety of plants and animals should be observed in the classroom. Planting of a variety of seeds should be observed in the classroom. Planting of seeds by each child will provide stimulation for observation of growth.
You must receive parental care to survive.	Use day-old chicks or small animals and discuss the necessity of feeding and cleaning up body wastes.
	Discuss the parental care of babies in their own homes.
Living things reproduce their own kind.	Have students plant seeds of varying kind and observe their growth. Observe the likeness of each species and compare rates of growth and size of plants.
	Use transparencies of pictures of adult animals and their young, including the human family.
	Use transparencies picturing growth from the embryo stages to maturity.
Living things reproduce in many ways.	Grow plants from seeds, tubers and bulbs.
	Discuss the transparencies or illustrations showing the cycles of the frog, pumpkin, chicken, wolf and human.
	Interested students can get pond water and grasses and add distilled water to cultivate paramecia and other micro-organisms. Observe asexual reproduction.
Young animals have a need for home, food and parental care.	Dramatize the mother and father taking care of a new-born child in the home.
	Have children collect pictures showing the different kinds of homes used by animal and bird life.
	Chart the developmental stages of different kinds of animal life (When did they first walk, feed themselves, leave their homes).
	Discuss the reasons for the various amounts of time needed for full development of different kinds of animal life.
	Select a film to illustrate the miracle of fertilization and birth.
A child identifies with the parent's role he would like to take, ie., boy wants to be like father's image, girl want to be like mother's image.	Develop and use "All About Me" data sheet.
	Draw pictures and explain how one's responsibility in the family changes as one grows older.
Liking and accepting oneself as an individual is basic to the development of a healthy personality.	Discuss meaning of personality and traits.

Personality is influenced by one's sex.

Role play activities which show a pleasant personality such as happiness, kindness, sense of humor, consideration for others, and sharing; and an unpleasant personality such as irritability, selfishness, unkindness, and poor manners.

Boys and girls are similar and different physically, emotionally, socially, and mentally.

Have each child describe his strengths and ways he can improve himself.

Each one has a unique personality which is shown by behavior and feelings.

Have each child write, discuss, or explain what he or she likes about being a boy or girl.

Diversity must be respected, not just tolerated.

Explore different and similar behavior in sexes from the standpoint of interests, abilities, activities, and personality traits. Example: Boys who want to be like father learn the masculine role, and girls who want to be like mother learn the feminine role.

Recognizing and improving strengths and overcoming shortcomings contribute to the development of a healthy personality.

Motivate children to select models whom they admire and would want to be like.

One's self-image and feelings of self-worth result from the extent to which physical and emotional needs are met or unmet.

Demonstrate ways personality of boys and girls are different in manners, interests and behavior.

Expression of feelings or emotions can be constructive or destructive to self and others; feelings are expressed by action and words; feelings help one learn about oneself.

Discuss basic needs such as security, love, and the need to belong. Have children describe ways these needs are met and how the meeting of these needs helps one develop respect for oneself and others.

Fourth-Sixth Grade Level

Puberty is a time for change in boys and girls.

Discuss physical, chemical (hormones) and personality changes that can take place during puberty. Reasons for the changes and why they are necessary for maturation should be stressed.

Show an appropriate movie on growth and development for males and females.

Boys and girls differ in skeletal and muscular structure.

Observe pictures of the male and female skeletal and muscular systems to illustrate the differences and reasons for these differences.

Emphasize how the differences in body structures are related to different roles in life.

The menstrual cycle is a natural event indicating the body has reached one area of maturity.

Discussion, lecture — handled by a person who is competent, confident and understanding.

Select and show current film on menstruation. Prepare class for film and provide for discussion and follow-up afterwards.

Personality is expressed by one's self-image.

Develop meaning of the "self-image." How can the comparison be made with seeing oneself in a mirror?

Ask pupils to write a paper on what they like about themselves and how they feel they can improve.

Creative Writing: "What Is It Like To Be a Boy or a Girl?"

Role play various personality traits and observe effect on others.

Grooming, manners, dress, the expression of one's sexuality, and feelings about one's sex role reveal personality and security.

Diversity must be respected, not just tolerated.

Growth in recognizing one's strengths and weaknesses is a sign of maturity.

Interests change as one grows and matures.

There are constructive and destructive ways of expressing emotions.

Self-respect and respect for others are demonstrated in choice of behavior.

The manner in which one deals with sexual drives and feelings can have a positive or negative effect on one's personality.

Masculine and feminine behavior is expressed in relationship to one's sex.

One's behavior has an effect on others.

Accepting responsibility for one's behavior and control of one's impulses and feelings should improve with maturity.
One cannot always have his own way.

Selection of wholesome leisure-time activities is important.

Adhering to social customs helps people feel comfortable with one another.

Practices followed and habits formed can be helpful or harmful to self and others.

Discuss why it is necessary to like and respect oneself before one can respect and like others.

Explore factors that affect personality.

Interview Using Tape Recorder: "The Kind of Person I Want To Become."

List desirable personality traits. Select a hero or model who shows these traits.

Help pupils to understand that each one is unique and to accept individual differences.

Review the basic physical and emotional needs and how these needs affect the individual when they are met or unmet.

Study basic principles of good mental health.

Have individuals discuss how they have changed since the primary grades.

Plan ways to help individuals develop a good self-image as well as respect for and trust in self and others.

Panel Discussion: "How Feelings and Expressions of One's Sexuality Are Similar and Different in Boys and Girls."

Establish standards for acceptable behavior and manner for each sex.

Panel Discussion: "What are Activities That Only Boys Can Do and Only Girls Can Do and 'Why'?" "Is a Boy a 'Sissy' If He Likes To Do Some 'So Called' Feminine Activities?" "Is a Girl a 'Tom Boy' If She Likes To Do Some Masculine Activities?" Summarize the discussion by basing selection of activities on individual interests, abilities, likes and differences and by suggesting that masculine and feminine behavior is copied and learned to a great extent from peers and adults.

Role play: Group problem solving, including examples of cooperation and respect for rights of others.

Have each pupil keep a record for a period of time, reporting things he has done to help others or make others feel happier and also recording what others have done for him. Summarize, without personalizing reports, how this type of behavior affects in a positive way. Contrast this to negative behavior.

List types of activities that boys and girls can enjoy together.

Dramatize and role play courtesy and manners which boys should show toward girls, girls toward boys, young people toward adults, and young people toward each other.

Discuss: (a) Characteristics that make you want to know a person. (b) Different kinds of friends. (c) How friends increase and change as one grows older and interests change.

Role play or dramatize how actions can set a good or poor example.

Discuss why individuals react differently to others.

There are many kinds of love and definitions of love.

Wholesome boy-girl relationships contribute to social adjustment.

The form of government of a nation affects individual and group freedom to make choices in terms of beliefs and behavior.

There are differences and similarities of families of the community, the nation, and the world, including customs, mores, and roles of family members which need tolerance and acceptance.

Roles of the sexes and standards of conduct vary in different societies and cultures.

Boys and girls usually desire to adopt patterns of behaviors in keeping with their sex role in the culture.

Technological change has been a factor affecting the attitudes, structure, and incentives of the family unit.

Proper vocabulary shows respect for self and others.

Individuals communicate with one another through speech, manners, and actions.

Mass media influence behavior.

Selections of clothing, manners, and actions affect the way others respect you and show your own self-respect.

Companionship of both sexes in a variety of wholesome activities helps individuals learn to understand others, to enjoy others, and to gain skills in sound human relations.

Broadening the scope of friendships tends to increase understanding of others.

Dating is a period of becoming better acquainted with members of the other sex.

Study ways of rejecting others' actions which are against one's principles. Discuss how to say "no."

Review reasons for avoiding invitations of friendly strangers.

Contrast the freedom of making choices in a pluralistic democracy to that of an authoritarian government.

Creative Writing: "In Which Type of Society Does the Individual Have Greater Responsibility for Behavior?"

Examine and compare roles, functions, and customs of families in our culture to those of other cultures. Example: Tribal and state control.

Compare sexual roles of family members in various cultures, such as patriarchal and matriarchal, with those in our present-day structure.

Study ways that family life has changed in the U.S. since the pioneer days. How have these changes affected role and responsibility of family members? What might they anticipate for the future?

Conduct research about nation and world families.

Note: It is recommended that the development of a proper vocabulary should be a part of the specific learning experience to which the words pertain rather than an isolated and separate skill. Providing an atmosphere where children can talk openly about their feelings and concern is important.

Spend sufficient time on new words in the units to allow pupils to become well acquainted with them, their meaning, and their pronunciation.

In preparation for using visual aids, take time to develop the vocabulary.

Discuss ways individuals communicate with one another positively and negatively through speech, actions, manners, and dress.

Analyze the many ways in which mass media communicate various messages to individuals, often directing behavior unless properly evaluated.

Develop vocabulary that is suitable and needed.

Panel Discussion Topic: "What Can I Do To Be a Good Friend?" "What Do I Want in a Friend?" "How Can I Get Along with My Friends?"

Examine ways in which broadening friendships can increase understanding of others, such as helping to choose friends wisely, increasing range of contacts and interests, providing for social enjoyment, and becoming aware of standards of others.

Panel Discussions: (a) "Group and Double Dating Versus Single Dating." (b)

Behavior in dating can affect interpersonal relationships now and at a later time in life.

Understanding of parent's concern for dating practices is a sign of maturity and respect.

One's self-identity may be different from one's self-image and one's reputation.

Signs of growth toward independence and maturity are recognizing and controlling one's feelings, making wise choices, accepting consequences of behavior, having ability to carry increased responsibility, and using good judgment.

Respect for oneself and liking oneself are important in developing a good self-image.

The self-image may be improved or injured to the extent one's sexuality is recognized by the other sex.

Physical and mental health contribute to personal attractiveness and a pleasant personality.

Sexuality is an integral part of one's personality; acceptance of one's sex and sexual role is essential to health and well-being.

Interest and curiosity about sex are normal.

"Qualities to Look for in a Date." (c) "How To Ask for, Accept or Refuse a date." (d) "Appropriate Activities on a Date." (e) Standards for Dating Behavior." (f) "Importance of Similar Interests and Hobbies in Dating Groups." (g) "What Opposite Sex Looks For."

Review the meaning of personality and how one's sexuality affects personality.

Develop a personality check list.

Discuss importance of establishing one's identity.

Creative Writing: "Who Am I?" (A short autobiography about self-identification. Information to be kept in confidence by teacher.) Utilize this technique to help pupils understand the importance of self-discovery in answering the question "Who Am I?"

Role play the actions of an immature and a mature person in given situations.

Plan a panel discussion on the importance of physical fitness, proper health practices, good grooming, and sound human relationships to the development of a wholesome personality.

Panel Discussion: "What is Meant by the Self-Image (as you see yourself), Self-Identity (as you really are), and Popularity (as others see you)?" "What Characteristics Make a Person Liked and Respected?" "Does Physical Beauty in a Girl and Strong Physique in a Boy Assure Popularity?"

Seventh-Ninth Grade Level

Adolescence is that period of growth when one moves from childhood to adulthood; puberty marks the onset of adolescence.

Many changes in the physical, psychological, and sociological development of boys and girls occur during adolescence; these changes proceed in an orderly fashion, alternating between fast and slow.

Individuals grow and develop at varying rates.

Girls usually enter puberty earlier than boys and, therefore, experience rapid growth changes ahead of boys; later, growth in girls levels off while boys continue their growth changes.

Explain that growth patterns vary for individuals, but all go through the same stages in an orderly sequence. All parts of the body grow and change, but not at the same rate.

Discuss the growth changes for boys and for girls which take place during adolescence, including the secondary sex characteristics, awakening of sexual feelings, and interest in the other sex.

Study the growth changes which characterize puberty such as physiological readiness for a boy to become a father and a girl to become a mother.

Compare the rate and nature of growth changes in boys and in girls.

Question: "What Do These Growth Changes Mean in Terms of Interests, Activities, and Relationships?"

Examine the particular function of the pituitary gland in growth changes.

Hormones secreted by various glands of the body cause the development of secondary sex characteristics which result in physical maturity.

Conception is the union of a sperm cell from the male and the ovum from the female.

People are born male or female, but learn masculinity and feminity to different degrees.

Each one is unique; heredity and environmental influences are significant in determining this uniqueness.

The reproductive systems of the male and the female are different because each has a special function to perform.

The reproductive system is present at birth, but, unlike the other systems of the body, does not function and mature until adolescence.

The sex drive is a normal, powerful urge which insures perpetuation of the human race. Positive expression of the sex drive can enrich one's life, bringing satisfaction, joy, and fulfillment to husband and wife.

Psycho-sexual differences in men and women are demonstrated in their personalities, behavior, and desires.

Freedom of the individual to choose whether or not to have sexual relationships carries responsibility for behavior.

Sexual restraint and management does not harm one or cause one to be unhealthy.

Masturbation will not cause physical harm. Presence of emotional factors (fear or guilt), violation of religious beliefs, and concern for social attitudes may result in personal problems.

Briefly study the endocrine system, including the functions and location of the various glands.

Questions: (a) "What is Meant by the Growth Spurt?" (b) "Do All Adolescent Changes Such as Physical and Psychological Take Place at the Same Time?" (c) "Is It Normal at This Period To Have Sudden Changes of Moods and Feelings?"

Discuss the importance of total growth and development, including social, mental, physical, spiritual, and sexual. Use different colored strings to demonstrate importance of total development. (A single string breaks easily. Two or more intertwined are more difficult to break.)

Explain conception and fertilization as the beginning of new life.

Study cell division, including cell specialization; study in particular the reproductive cells, the sperm and the ovum.

Explain role of genes and chromosomes in determining heredity factors, sex of baby, and presence of particular female and male characteristics in the individual.

Discuss the miracle of a new life.

Explain the growth and development of a single child, twins, and multiple births. Make use of models, transparencies, pictures, and reading materials. (Siamese twins may be included.)

Explain that fertilization may not occur each time that individuals have sexual relationships. This can be due to many reasons. Note: Use judgment when discussing the reasons.

Construct a family tree and follow certain family traits or characteristics such as color blindness through several generations.

Explore how these traits or characteristics are acquired from parents and passed on from generation to generation.

Explain the function of genes and chromosomes in determining the pattern of each individual. Question: "Why Are No Two Individuals Exactly Alike?"

Study how the environment — including family, friends, community, and school — influences the type of person one becomes.

Study various additional factors which influence individual development; these would include disease, poor nutrition, poor health habits, improper functioning of various parts of the body, and accidents.

Questions: (a) "Does Heredity or Environment Have the Most Influence on Personality and Character Development?"

Study in detail the anatomy and physiology of the male and the female reproductive systems, including menstruation, menopause, seminal emissions, and erection.

Explain that the sex drive is a natural part of each individual, just as eating and breathing.

Panel Discussion: "Physiological and Psychological Sex Differences in Boys and Girls."

The development of the unborn baby from fertilization to birth follows a complex and orderly pattern of growth.

Compare freedom and responsibility of human beings and animals in sexual behavior and concern and care of offspring.

Explain masturbation. Ask pupils to consider its effect on the total individual.

Discussion: (a) "What are Reasons for Not Satisfying the Sexual Drive Before Marriage?" (b) "Can the Expression of Affection Through Physical Contact with Another Person Result in Sexual Arousal?" (c) "What Are Types of Sexual Problems Which Can Face Adolescents?"

Explain the meaning of the following terms or words in preparation for study: prenatal period, postnatal period, gestation, pregnancy, embryo, fetus, conception, fertilization, labor, umbilical cord, and afterbirth.

Use models, transparencies, films, and reading materials to study and chart the growth of the baby during the approximate nine months of the prenatal period.

Discuss the health care needed by the mother during this period.

Explain the process of birth of the baby. Use models, charts, and transparencies.

Discuss ways in which the mother is helped before, during, and after the birth of the baby.

Explore ways that members of the family can help during the time the mother is pregnant and after the baby is born.

Questions: (a) "What Is a Miscarriage?" (b) "What Is the Difference Between Natural and Induced Abortion?"

Correct and proper vocabulary facilitates verbal communication.

Note: It is recommended that the development of a proper vocabulary should be a part of the specific learning experience to which the words pertain rather than an isolated and separate skill.

Develop appropriate vocabulary for all areas. Check on knowledge and usage of vocabulary by written tests, questions and answers, and discussions.

The beauty and goodness of the total human being can be expressed in many ways.

Contrast the meaning of beauty and truth in the arts to the purpose of pornographic and obscene material.

Sexuality may be expressed in verbal and nonverbal ways.

Examine verbal ways to express one's sexuality.

Examine nonverbal ways to express sexuality such as manners, dress, behavior, and treatment of and relationships to others.

The family setting serves as a laboratory for learning communication.

Give examples of direct and indirect sales promotions based on sex.

Panel Discussion: "Effect of Mass Media on One's Standards, Behavior, and Sexual Feelings."

Words are often assigned to build a slang or double meaning vocabulary; meanings of words may change.

Discuss good and poor qualities of movies, books, recordings, and television.

Question: "Do Actions Speak Louder Than Words?"

Sexual feelings can be stimulated and aroused through the senses.

Dramatize various means of communication such as speech and manners.

Obscene and profane words directed at a person may be used as a weapon to cause injury or to express anger; they may result in hostile or aggressive behavior.

Some sale promotions are based on sex and may directly or indirectly affect attitudes toward sex. They are often genital centered.

Open communication among groups or individuals provides for interaction, testing of ideas, and a process for growth.

Values, standards, and goals affects one's attitudes and behavior toward premarital sexual permissiveness and sexual behavior.

Choice of behavior shows maturity or immaturity.

Petting, necking, and other means of sexual stimulation can lead to sexual intercourse or sexual relationships.

Premarital and extra-marital sexual relationships or intercourse can result in personal, emotional, and social problems.

Premarital and extra-marital sexual relationships and sexual permissiveness are not accepted by prevailing moral, legal, and social codes in our society.

Sexual exploitation of another shows irresponsible behavior and lack of concern for the welfare of the individual.

The desire to express feelings of affection is common to both sexes.

Love is given to individuals in different ways; each kind of love has a responsibility and an obligation.

Under various forms of government, an individual's rights and responsibilities differ.

Our society includes many types of cultures.

Patterns of sexual behavior differ among individuals, countries, groups, and cultures.

Sensitivity to differences in people and their customs helps one understand them.

Study emotions, their control and expression.

Discuss differences in sexual feelings and desires of boys and of girls. Apply to such activities as necking, petting, and sexual stimuli.

Panel Discussion: (a) "Does Physical Expression of Affection Always Lead to Sexual Feelings and Desires?" (b) "How Does Choice of Behavior Show Maturity or Immaturity?" (c) "What Is Meant by Sexual Exploitation of Another?" (d) "Why Are Parents Concerned About Dating Behavior?" (e) "What Is the Meaning of the 'Single' and 'Double Standard' in Relation to Sexual Behavior of Both Sexes?"

Discuss the effects of responsible and irresponsible sexual behavior on oneself and others, the importance of self-respect, and concern for others as a factor in making wise decisions and choosing alternates.

Discuss appropriate and inappropriate sexual behavior.

Brainstorm: Problems associated with premarital sexual relations such as fear, guilt, shame, lack of trust, disruption of long-range goals and plans, pregnancy, abortion, unsuitable early marriage, illegitimate children, and responsibility of both parties in caring for the child.

Contrast the freedom of individuals in an authoritarian form of government with a pluralistic democracy such as ours. Explore the following:

a. How does our society protect the rights of the individuals?

b. Explain the statement that "For every right there is a responsibility."

c. How do the responsibilities and rights of individuals relate to choice of one's sexual behavior?

Study dating, engagement and marriage customs in various countries and cultures.

Study the influences that various people such as parents, other adults, siblings, peers and friends, and cultural groups have on one's behavior.

Study influences of mass media and advertising on one's sexual behavior.

Culture and religious belief may have an effect on one's behavior, including sexual behavior.

Dating, engagement, and marriage customs vary from one country to another and from one culture to another.

Many factors and forces influence the status of the family.

Overpopulation and population control are world-wide problems.

Societal values are desirable or worthy for the preservation of civilization; goals and standards are influenced by values.

Personal values are gained from many sources and may change throughout life.

Values and standards apply to all human relationships, including sexual behavior.

Selection of standards reflects values and influences behavior; also values have meaning in how we deal with one another.

Decision making involves many factors; making wise decisions is a sign of maturity.

A philosophy of life can serve as a guide for consistency and quality of choices of behavior in our pluralistic society.

Human beings having freedom to make choices of behavior, including sexual behavior, must accept responsibility for such choices and behavior.

Opportunity and responsibility to direct behavior according to one's ability can help one cope with sexual feelings and desires.

Errors in personal judgment and mistakes can be overcome.

Sexual behavior is neither good nor bad in itself; the way sexuality is used makes it good or bad; it can bring joy and pleasure or sorrow and unhappiness.

Discuss current movies, music or television programs relative to their effect upon attitudes and behavior.

Have students read appropriate short stories recommended by the language arts department.

Examine forces and pressures which affect families and cultures in our society. Have groups of students construct a 3-foot by 4-foot poster or montage. The only instructions should be to "put on the poster what you think society is and what your problems in society are." Each group should interpret its poster.

Discuss the influences of the family of working mothers, mobility of population, and industry moving families at regular intervals.

Have each student develop a statement on a value and show how this value can affect his sexual behavior. Example: "I Believe That Sex Is . . ." or "Why I Support the Golden Rule." (Statements can be anonymous.)

Explore ways personal values are gained through direct and indirect methods and sources such as home, church, community, and peers.

Study and demonstrate the steps in the decision-making process. Example: identification of problem, research, and solution or decision.

Present several "open end" problem situations regarding decision making and have students suggest solutions. (Use case histories.) Analyze consistency and choice of alternatives and values.

Analyze values presented in a recent movie, book, or television program.

Note agreement, disagreement, and ability to select values.

Brainstorm: "How Do 'Models' or Persons You Admire Influence Behavior?"

Explain the meaning of a personal philosophy. Ask each student to write his. Summarize by relating a philosophy of life to values and standards.

Panel Discussion Topics:

a. "What Are Guilt Feelings?"

b. "Should Boys and Girls Have Different Standards of Sexual Behavior?"

c. "Do You Have a Responsibility for Other Members of Society?"

d. "Do Values and Standards of Famous People Have an Effect on Your Life?"

e. "Why Do Values and Standards of People Differ?"

Discussion Topic: "Why Do I Act the Way I Do?"

Creative Writing: "The Kinds of People I Admire and Why" or "My Most Unforgettable People." Analyze their characteristics.

Develop a set of standards to guide sexual behavior in a positive constructive manner.

Guidance and defined boundary lines can help to develop or apply positive behavior controls.

Physical maturity, the ability of the individual to reproduce, is but one aspect of total maturity.

Tenth-Twelfth Grade Level

Maturation proceeds on an individual basis in an orderly sequence; however, each individual is unique.

Each individual should understand the anatomical, physiological, and psychological functions of human reproduction and should understand that there are similarities and differences between human and animal reproduction.

Developmental stages of individuals and the family life cycle are basic to a study of human reproduction.

Sexuality can be expressed in many ways, not only in terms of genitality.

An understanding of the basic concepts of human genetics is important in preparing young people for marriage, parenthood, and family life.

It is important to secure frequent health and medical care throughout life; this care has a special significance for mothers during the prenatal and postnatal periods and for couples planning to be married.

The individual's sex drive is a natural, powerful drive that can be controlled and directed in a responsible manner through self-understanding and self-discipline in keeping with personal values and standards.

Topics for Committee Work and Panel Discussion:

a. What is the difference between immediate and long-range goals?

b. What is meant by responsible sexual behavior?

c. What is meant by choosing alternatives and acceptance of consequences of behavior?

d. What is involved in correcting a mistake?

e. Demonstrate process of solving a problem.

Discussion Topic: "The Importance of an Individual Going Through a Sequence of Orderly Development and How Short Circuiting May Tend To Interfere with These Developments."

Discussion Question: "Do All Types of Maturity Such as Physical, Emotional, and Social Proceed at the Same Rate?"

Use charts and graphs to show different rates of growth.

Review the anatomy and physiology of the male and female reproductive systems.

Make use of charts and visual aids in presenting this topic.

Question: "How Does Knowledge Related to Reproduction Contribute to the Development of Wholesome Attitudes?"

Have students discuss how they would answer questions of children 5 to 8 years of age about reproduction.

Discuss the meaning of menopause.

Discussion Question: "What Is the Difference Between a Spontaneous and an Induced Abortion?"

Take a field trip to the maternity ward of a hospital to see the nursery, labor room, delivery room, and equipment.

Use charts to study the family life cycle.

Have students write a short paper regarding the meaning of sexuality. Use this information for group work or class discussion.

Stress the importance of studying an individual's chromosomes, family history, and other data in determining whether parents may have an abnormal child.

Explain that each sperm and ovum have stored chemical chromosomes which contain a code of directions that determine the heredity of a child.

Study the meaning and importance of DNA molecules. Have students construct models of DNA.

Design a chart showing common human traits or characteristics noting which ones are dominant and recessive.

Man, due to his highly developed nervous system, is able to exercise conscious control over much of his behavior; he is capable of self-directed behavior by use of reason.

Understanding the growth patterns of children is essential for successful child rearing.

Understanding the sex role in our society is important to healthy psycho-sexual development.

Discuss genetic concepts important for young people planning to marry.

Have a resource person such as a school nurse to discuss what is involved in good prenatal and postnatal care. (Include the Pap smear and proper nutrition.)

Review the junior high school material on the sex drive.

Use films and filmstrips to serve as discussion framework for venereal disease education.

List and discuss emotional needs of infants and young children.

Observe a young child you know for ways in which he displays feelings toward environment and family. What level of success should we expect of an infant (1 year old and 2 years old) in controlling feelings?

Formulate guidelines for disciplining a child.

Panel Discussion: "Are Masculinity and Femininity Traits Inborn?"

Discuss the importance of experiences in the first years of life.

Review stages in life when a child is most vulnerable to imprinting gender role and identity.

Stress the importance of learning about child care and development. Present a unit of study for all students.

Motivate students to gain experience in child care by working with younger children.

Review characteristics or development of children from late childhood to puberty.

Panel Discussion Topic: "Why Is Adolescence a Difficult Period in Life?"

Buzz Group Topic: "What Is the Difference Between True Adulthood and Young Adulthood?"

Personality is complex, ever changing, and expanding.

The development of a sense of "self" is a gradual and continuing process.

An understanding of and acceptance of one's self are basic to the understanding and acceptance of others.

Growth in the development of a positive and constructive philosophy of life is indicative of a maturing personality.

Sexuality is an integral part of life and a vital part of personality.

Review meaning of personality, including factors which help one develop a positive self-image and gain acceptance by others.

Discuss effect of heredity and environment on one's personality and well-being.

Brainstorm Session Topics: (a) "Compare Personality Changes since the Junior High School Years." (b) "Changes in Attitudes Towards Sexuality."

Creative Writing: "My Personality Assets and Liabilities and the Skills Which I Have Developed."

Examine case studies to find evidence of positive and negative personality traits of individuals concerned.

Panel Discussion: "How Did I Develop My Sexual Identity?"

Creative Writing: (a) "How Did I Become the Person I Am?" (b) "Influences in My Life."

Discussion Questions: "What Is Meant by Maturity?" "Sexual Maturity?"

Political, philosophical, religious, and cultural beliefs influence patterns of sexual behavior.

Examination of various individual and societal beliefs relating to sexual behavior will increase a person's understanding of the need for a personal code of behavior to assist in adjustment to societal influences and demands.

Varying religious beliefs affect standards of sexual behavior.

The family system is inter-related with and affects other parts of the culture; other parts affect the family in terms of economic, religious, political, and familial; if one system changes, the others are affected.

Democratic freedom provides an opportunity and a responsibility for each individual to develop and to make decisions according to his personal value system, providing that the rights and freedoms of others are not violated.

Each individual needs to accept the responsibility for a personal code of ethics in keeping with his value system, society's standards, and rights of others.

An individual who has developed a personal system of values is willing to make sacrifices to progress toward accepted goals which are in harmony with such values.

Question: "What Are the Personality Traits of an Emotionally Mature Personality?"

Discussion Questions: (a) "Is It Normal To Have an Erotic Dream?" (b) "Is It Normal To Have Seminal Emissions?"

Review the various forms of political ideologies. Compare them with a democratic pluralistic ideology in regards to existing laws related to sexual behavior. Examples: abortion laws, marriage laws, population control and birth control, and deviant sexual behavior. (Examine reference materials.)

Debate the existing laws related to sexual behavior.

Examine philosophical beliefs apparent in a society and the effect on an individual's personal philosophy of life and development of personal value system. Example: identification and knowledge of the various beliefs of sexual behavior such as asceticism, humanism, or anarchy.

Explain how varying religious beliefs determine standards of sexual behavior.

Debate for or against censorship in the area of sexual information or misinformation.

Study cultures and subcultures in society to better understand different standards of conduct in sexual behavior. Examples: double and single standard, identification of subcultures, and social class and religion.

Brainstorm Session: "What Are Problems and Issues Facing Our Society in the Area of Family Life and Sexuality?"

Independent Study and Research: "How the Role of the Family in Our Society Has Changed Due to Economic Influences, Urbanization, and Cultural Influences."

Small Group Discussions and Class Reports: (a) "What Social Forces Are Affecting the Stability of the Family?" (b) "How Does Trial Marriage Affect Family Stability?" (c) "What Are the Effects of an Interfaith Marriage?" (d) "What is the Effect of Mutuality in Marriage?" (What effects do political, socio-economic, and religious differences have on marriage?)

Review the meaning of a code of values and the relationship of values, standards, and behavior.

Independent Study: Ask each student to express in writing a personal code of value on topics such as dating behavior, family planning, inter-racial dating or marriage, and treatment and opportunities for unwed mothers. (Statements may be anonymous.)

Brainstorm: (a) "Is Every Individual Capable of Planning His Sexual Behavior?" (b) "May circumstances Beyond an Individual's Control Determine His Behavior?" (Example: A boy may be responsible for his girl friend's pregnancy but may not want to accept responsibility for his actions.)

Small Group Discussions: (a) "What Factors Are Involved in Decision Making Regarding Sexual Behavior?" (b) "What Social Pressures Operate To Influence Sexual Expression?"

In a democratic pluralistic society, one has the responsibility to recognize the right of individuals to adopt and follow different codes of ethics.

Any rules or standards of behavior should protect the individual's right to question them. Realistically, rules will sometimes be broken and standards sometimes will not be upheld. It must be recognized that an individual's mental stability frequently depends upon being able to rationalize behavior which is contrary to rules and standards.

Moral behavior implies that all relationships between people should be meaningful, substantial, and mutually valued.

Signs of maturity are meeting problems, making decisions, facing and dealing with guilt, and accepting responsibility.

Effective communication may be verbal or nonverbal.

Utilization of correct terminology in the area of human sexuality can be a strengthening factor for respect of self and others.

Effective communication between individuals is of primary importance in preventing serious problems.

Failure of youth and adults to communicate about problems and needs is caused by a lack of openness, receptivity, and honesty about sexuality.

Participating in gossip, spreading rumors, or spreading information about sexual behavior of a person as a result of hearsay, observation, or deduction of behavior can cause serious damage to a person's reputation.

Sexual aspects of personality are revealed or concealed by such things as speech, gestures, thoughts, actions, appearance, and manners.

Panel Discussion: (a) "What Is Morality? Does It Change?" (b) "How Do Self-Integrity, Values, and Respect and Concern for Others Affect One's Moral Judgments in Regard to Sexual Behavior?" (c) "Contrast Moral and Immoral Behavior." (d) "Ways To Handle Conflicting Value Systems."

Review and analyze current movies regarding effect upon values.

Discuss the hedonistic point of view advocated by Hugh Hefner.

Note: It is recommended that the development of a proper vocabulary should be a part of the specific learning experience to which the words pertain rather than an isolated and separate skill.

List methods of verbal and non-verval communication such as art appreciation, sense of humor, and pornography. Analyze stories in magazines and interpret music of teenagers.

Review court decisions on pornography and obscenity.

Discuss: "Why Are 'Dirty' or 'Off-Color' Jokes Told?"

Discussion Topic: "The Role of Modeling (setting example) in Sexual Communication."

Buzz Group Topic: "The Importance of Free and Honest Communication in Interpersonal Relations Relative to a Couple's Responsibility to One Another."

Discuss the results of a breakdown of communication such as marriage conflicts, divorce, impotency, adultery, and extramarital relationships.

Discussion Topics: (a) "The Importance of Providing an Environment for Communication with One Another." (b) "How Can the Communication Gap Between Different Age Groups Be Narrowed or Eliminated?" (c) "What Conditions or Circumstances Can Make It Difficult for Parents and Adolescents to Communicate?"

Investigate the problem of the generation gap. Develop a panel discussion involving parents and students.

Buzz Group Topics: (a) "Why Is the Reputation of the Girl More Easily Damaged Than That of the Boy as a Result of Sexual Gossip or Rumors?" (b) "Does the 'Double Standard' Have Implications?"

Selected References and Resources

Child Study Association of America, 9 East 89th Street, New York, New York 10028

Guidance Associates, Pleasantville, New York 10570

National Council on Family Relations, 1219 University Avenue S.E., Minneapolis, Minnesota 55414

Sex Information and Education Council of the U.S., 1790 Broadway, New York, New York 10019

United States Department of Health, Education and Welfare, Washington, D.C. 20402

American Association for Health, Physical Education and Recreation, 1201 16th Street N.W., Washington, D.C. 20036

American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610

American Social Health Association, 1790 Broadway, New York, New York 10019

E. C. Brown Trust Foundation, 3170 S.W. 87th Avenue, Portland, Oregon 97225

"Free & Inexpensive Learning Materials", Division of Surveys & Field Services, George Peabody College for Teachers, Nashville, Tennessee 37203

Montana State Department of Health and Environmental Sciences, Film Catalog, Health Education Bureau, Cogswell Building, Helena, Montana 59601

HEALTH PROTECTION — SAFETY EDUCATION

Rationale for Unit: Pause a minute . . . to think about your school's role in education for accident prevention. Accidents for young people, ages 15-24, are the leading threat to their lives. They are responsible for more fatalities than all other causes combined. The suffering, expense, and loss of time call out for school participation in preventive action.

When a school has no accident for the school year, it is not an accident. It is the result of educators concerned with the well-being of their students. They are also increasingly aware that safety is a product of good education rather than of simple good fortune.

Knowledge about what one is doing, whether it is how to do something or the limitations of an action or equipment, enters into accident prevention. Attitudes, some of which are not obvious, guide behavior and lead one into or away from a hazardous situation.

Leadership for safety education must originate within the school through direct and indirect experiences. Indirect experiences come through living in a safe environment, both at work and play. Direct experiences come through class instruction in safety and participation in student safety organizations. Safety education must be given its rightful place in all classes, not in just one. Many non-school agencies can use their resources to enrich the overall program. The Fire Department, the Traffic Division of the Police Department, insurance companies and industrial safety engineers can all contribute to the basic school safety program. We must make life at school as safe as possible, and provide a planned program of safety education. An annual safety week program is not enough as habits, skills and

desirable attitudes develop slowly. The challenge to the teacher is to provide experiences that will be both meaningful and continuous. A "No Accident School Year" can be made a reality!

Basic Concept: Safe living involves the development and use of safety precautions while recognizing the inevitability and appeal of risk taking.

Suggested Pupil Outcomes: The Student:

1. Applies reasonable safety precautions in daily living and in known hazardous situations.
2. Attempts to make the environment safe and assist others in such efforts.
3. Evaluates potential risks, uses sound judgment in avoiding or coping with them and alerts others to such risks.
4. Accepts the fact that some accidents are inevitable, but develops an interest in determining how safe behavior can reduce the possibility of personal involvement, injury or death.
5. Understands that accidents are caused by human and environmental factors and may result in injury, property damage or death.
6. Realizes that natural and man-made environmental factors influence health and safety and that some environmental conditions can be modified and controlled.

CONCEPTS

Kindergarten-Third Grade Levels

The responsibility for safe conduct to and from school begins to become an individual's concern.

The community helps in keeping areas safe for pedestrians.

We should be aware of many different things when we are walking.

SUGGESTED PUPIL ACTIVITIES

1. Learn name of school and location of school.
2. On a blank map, fill out the safest route to school and show to parents.
3. Go outside with a school patrol member and practice where, when and how streets should be crossed.
4. Prepare a list of safety rules for use when riding the school bus; or dramatize by arranging chairs to represent school bus. Show correst way of boarding, riding, leaving, and crossing in front of bus. Include emergency evacuation.
5. Make posters of school bus rules; street signs; how to cross streets correctly.

1. Walk around the school neighborhood to learn location of traffic signs.
2. Discuss safety problems encountered while going to and from school. Include meaning of safety signs - danger, stop, slow, school, railroad, etc.
3. Make traffic signal box (milk carton covered with paper with appropriate colors). Mount on stick and play traffic games.

1. Set up traffic situations and illustrate rules for pedestrians. Invite a policeman to visit class to help with discussion.
2. Make a list or booklet of animals they may encounter on way to school; how and when they could be dangerous, what to do if bitten.
3. Visit a pet shop to observe how the owner handles animals.
4. Invite a member of the SPCA to demonstrate care of pets.
5. Discuss why pupils should not talk to strangers or accept anything from them.
6. Establish rules of what they should do when approached by strangers.
7. Draw or mark off a street on classroom floor, use toy cars to demonstrate dangers of walking out between parked cars, stepping off curbs with out looking and turning cars, especially right-hand turns.
8. Make posters showing dangers of jaywalking.
9. Darken room and have pupils dressed in various colored clothing walk in front of room. Be sure to have one pupil wear white. Discuss which colors are more easily seen and the correct way to walk along streets or highways that do not have sidewalks.
10. Write short stories on "How to be a Good Pedestrian."
11. Make a series of charts or graphs showing the number and kinds of pedestrian accidents in the local community, Montana or nation.
12. Discuss how behavior should be adjusted to meet unexpected weather hazards.

There are community helpers and other school people concerned with our well-being.	1. Invite a fireman to explain why we have fire drills. Have actual practice of both fire and civil defense drills. Select alternate routes from class, lunchroom, lavatories. Correlate with national fire prevention week. Demonstrate how to extinguish burning clothing. 2. Schedule visit to fire station with fire marshal. 3. Interview policeman, nurse, bus driver, school patrol members, etc., about their help in safety. 4. Invite the head of the physical education department to discuss and demonstrate safety on the playground and in the gymnasium. 5. Visit nurse's office to find out how children who are injured are helped. 6. Dramatize "lost child game," one child is lost and another is policeman. (Each child reviews home address, telephone number, and name. Learn how to use phone.) 7. Invite students from Home Economics or Social Studies classes to demonstrate school and community safety policies.
Play activities are fun, but must be controlled.	1. Demonstrate how to use slides, swings, teeter-totters, etc. 2. Demonstrate typical safe play situations and those containing common accident hazards. 3. Emphasize falling and running hazards. 4. Plan safe games for playground use. 5. Learn proper and safe use of equipment, materials, such as scissors, tricycle, blocks, wagon, lunch trays. Have students from junior or senior high school Home Economics classes assist with this learning experience. 6. Visit bicycle rack and discuss safety for both riders and pedestrians. 7. Make a list of the wheeled vehicles the children own. Discuss where they may be used safely. (skateboards, scooters, roller skates, etc.)
Courtesy and conduct are important to good school safety.	1. Make charts showing how left and right change as direction changes; correlate it to behavior in halls and on stairs. 2. Demonstrate how to walk up and down stairs; one step at a time; opening doors; controlled rate of walking; going around corners; staying to the right, etc. 3. Demonstrate entering and leaving building (avoid pushing, shoving, tripping, single file, doors properly opened, shoes tied, hats off eyes, etc.) 4. Demonstrate conduct and courtesy in use of drinking fountain, lavatory.
We can help others prevent accidents.	1. Draw or paint safety posters and illustrations. 2. Make a safety scrapbook with children's drawings and/or pictures cut out of magazines and newspapers. 3. Make puppets and plan a puppet show on "safety."

We can practice safety and courtesy away from school to help prevent accidents in play activities.

4. Put on dramatic play showing safe way of doing things for other classes or parents to see.
5. Make bulletin board displays on safety in the school.
6. Make up safety riddles, "Carry me with my point down."

1. Make a display of toys or small play equipment which can be dangerous if not correctly used. (marbles, hard balls, jump ropes, sling shots, BB guns, dart games, bows and arrows, etc.) Discuss why each may be dangerous.
2. Have the class develop some rules of "safe play" (Marbles and other objects kept out of the mouth, nose, ears; not to run with pointed objects; not to throw hard objects.)
3. Discuss taking turns.
4. Dramatize what to do if a ball rolls into a street.
5. Discuss the safe place and way to use a kite; what materials to use for flying a kite.
6. Draw and discuss pictures of places or things to avoid during play (railroad tracks, bridges, refrigerators, plastic bags, caves).
7. Demonstrate care of minor injury. Discuss importance of adult guidance and reporting all injuries no matter how small.
8. Make holders for scissors, needles and other sharp tools. (Paint spools, corks, etc.) Practice the correct use of hammer, saw, screwdriver.
9. Make map of neighborhood showing safe places for play and recreation.
10. Discuss water and boat safety.

Education and planned action could save our lives in hazardous situations relating to fire.

1. Demonstrate how to act in case of a home fire (getting out of building, alternate routes, getting brothers and sisters out, getting adult help, calling fire department).
2. Demonstrate how to roll up in blanket if on fire.
3. Discuss why an adult should always be present when they are near an open fire.
4. Demonstrate making a fire extinguisher by putting vinegar in a bottle, adding small amount of baking soda, which has been wrapped in tissue - put in a stopper (rubber) with a pipette in bottle, turn upside down, and aim mixture into a pail or sink.
5. Demonstrate out-of-doors how to build a fire with wood and matches, demonstrate how to put it out with dirt, sand, water, and blanket. Discuss how to light matches. Danger in using kerosene or gasoline to start fire.
6. Discuss the safe use of candles at celebrations. (include sparklers, blasting caps, etc.)
7. Visit a fire house.
8. Visit the scene of a recent fire in the neighborhood.

9. Discuss behavior during a school fire drill.
10. Make receptacles for matches.
11. Conduct simple experiments to show flammability of materials and effects of draft on fire.

Certain physical factors coupled with carelessness can be responsible for falls, a common danger in the home.

1. Demonstrate that a rubber-backed rug will not slip as easily as one that is not rubber-backed.
2. Discuss what could be results of skates, pencils, marbles left on stairs or floors.
3. Demonstrate the difference in slipperiness of a dry and wet basin to show hazards of tub and shower.

There are harmful substances in certain plants, animals and products of which we should become aware.

1. Make a collection of magazine pictures to be used in a chart depicting household products which may be dangerous; assemble pictures by rooms in a house (bathroom, laundry, etc.).
2. Make a display of plants to avoid (pictures or illustrations). Survey local neighborhood to see how many grow in your area; discuss eating strange berries.
3. Discuss poison symbol. Construct cabinet made of heavy paper, place in it drawings of all things that may be poison. Discuss taking medicine.
4. Make a display of poisonous animals and insects.

An understanding of the potential of electricity is important in establishing a safe household atmosphere.

1. Discuss simple safety rules regarding electric light cords, sockets, and use of small appliances.
2. Discuss danger of turning on lights or touching electrical appliances when hands or feet are wet.
3. Discuss electrical storm hazards.
4. Make drawings of every room in the house to show people in act of having accident.
5. Make up safety slogans.
6. Discuss horseplay in any situation.
7. Bring an electric train to school and demonstrate proper use. Discuss safe use of transformer.
8. Demonstrate static electricity (walking on wool carpet, combing hair, stroking cat's fur, etc.).

We can assume responsibility for accident prevention.

1. Develop a chart "code of conduct" made by the class after a discussion of individual responsibility in accident prevention (following rules informing teacher when equipment is worn or broken, etc.).
2. Discuss what to do if an accident happens at school when there is no adult person.
3. Dramatize how the lack of courtesy may cause confusion and danger on stairs, at drinking fountain, etc., and cause others to have accidents.

4. Use creative writing, puppet demonstrations and flannel board characters to develop the idea of respect for others' safety.
5. Discuss meaning of courtesy in relation to concern for the other person and safety for others. (no tripping, shoving, etc.)
6. Make posters showing do's and don't's of good housekeeping practices of what happens when floor is not tidy and clean, etc.
7. Make pictures of patrol boy doing his job. Discuss why they need to be obeyed.
8. Discuss reasons for laws and regulations regarding safety and the need to follow them.
9. Make a "Be Careful" scrapbook with pictures of hazardous situations or places. Also use pictures of people doing dangerous things or using dangerous objects.

Fourth-Sixth Grade Levels

A knowledge of the cause and kind of accidents can help us plan for more responsible actions.

1. Investigate and discuss accident statistics and traffic hazards in your neighborhood. Construct a graph to display on board.
2. Study and graph accidents in pupils' homes for a 5-6 month period. Compare with graphs for national accidents. Discuss how different locales have different hazards.
3. Prepare self-test or pretest for other grades on pedestrian, bicycle and skate-board traffic safety.
4. Compare current traffic laws with those of the 1920's and see how they've been changed to keep up with modern life.
5. Bring in newspaper accounts of accidents and have discussion period to try and determine causes and prevention.
6. Discuss close calls, and minor accidents happening to students. Note how some minor accidents become major ones and how to prevent them from happening again.
7. Discuss the hazards associated with large crowds.

Increased freedom in play activities requires safety practices.

1. Have a member of local police department explain rules and regulations concerning equipment and operation of bicycle.
2. Have bicycle inspection at school to determine if properly equipped, licensed and registered.
3. Have a bicycle safety court.
4. Have bicycle check to see that bikes are properly identified and parked. Invite high school students to assist.
5. View films relating to bicycle safety.

6. Assist in sponsoring a "bicycle rodeo" on a week end. PTA, local police or service club could work together in organizing, conducting and judging the rodeo.
7. Keep a record of bicycle accidents and how they could have been prevented.
8. Observe and record stopping time for bicycles, skates, skateboards, automobiles on wet and dry pavement. Chart results pointing out need for considering reaction time, weather, etc., in determining safety practices.
9. Make booklets on safe biking.
10. Investigate and report safety practices to follow when riding on a train, airplane, space flights.

School accident prevention depends on each of us.

1. Develop a simple check list and conduct survey for hazards in buildings, on grounds, student conduct, etc.
2. Discuss practices which will avoid accidents due to these hazards. Make up appropriate slogans and posters for display.
3. Demonstrate to younger children proper use of fountains, way of going up and down stairs, safe use of playground equipment.
4. Draw up a plan of grounds and buildings, pointing out areas considered unsafe.
5. Organize a "clean-up the playground" period to remove hazardous objects.
6. Discuss and list safety rules for equipment used on your school playground and in sports activities.
7. Write a short essay on school safety.
8. Study and practice the duties of the safety patrol in preparation for becoming a patrolman.
9. Prepare original plays involving safety rules and precautions.
10. Study the community civil defense program and how the school is involved.

Many home accidents can be eliminated by the action of individual family members.

1. Collect and discuss news articles on home accidents and ways in which these accidents might have been prevented.
2. Make a card for home use listing telephone number of fire and police departments, ambulance, family doctor, nearest relative, and poison control center.
3. Present a panel discussion, skit or radio quiz on ways each individual can help make a safe home.
4. Make cartoon drawings depicting safety at home.
5. Complete a home fire hazard check list and make as many corrections as possible.
6. Collect data on the causes of fires in homes, public buildings and forests.
7. Make decals for home use on safety exits and where children are sleeping.

We should understand that fire prevention is part of civic and individual responsibility.

8. Invite an electrician from the power company to discuss electrical hazards with the class.
9. Experiment with dry cell batteries to determine how electric insulation may be grounded or shorted out.
10. Correspond with insurance companies to determine the number of home falls and how this relates with other accidents, involving relatives and close friends.
11. Report on causes and results of home accidents that involved relatives or close friends within the last year.
12. Prepare an exhibit of hazardous objects or materials found in homes such as metal toys with sharp edges, rugs without rubber backing, oily rags improperly stored, and easily accessible poisonous substances.

1. Study carefully FIRE DRILL and civil defense regulations posted in the classroom.
2. Participate in fire drills. Discuss ways to improve fire drills. Notice location of fire safety equipment in building.
3. Participate in campaigns to eliminate fire hazards in homes and schools.
4. Discuss types of burns and treatment for each; discuss ways to prevent and care for sunburn.
5. List all the flammables found in the home and discuss the storage of each.
6. Anticipate seasonal fire hazards in your locale and list by the season.
7. Make a list or gather examples of as many types of fire extinguishers as you can. Find out the type of fire for which each one is most effective.
8. Discover means of personal protection in case of fire.
9. Gather news clippings about recent fires. Try to determine how they could have been avoided.
10. Prepare a display of fire fighting equipment.
11. Research and report on the history of fire fighting.
12. Investigate modern-day methods of controlling fires.
13. Conduct experiments on the physical and chemical principles of fire.

We can undertake responsibility for the safety of ourselves and others.

1. Demonstrate and practice various techniques used in giving first aid (bleeding, artificial respiration, poisons, shock, burns, general purpose and principles).
2. Make a list of important telephone numbers for use in emergency.
3. Collect newspaper clippings about accidents. Discuss first aid procedures that might have been used in each situation.
4. Plan a first aid kit for home, automobile, camping, or hiking.

5. Analyze accidents reported in newspapers and describe how they might have been prevented.
6. Invite a nurse or physician to speak to class about importance of first aid and basic procedures.
7. Plan a demonstration of the proper method of artificial respiration.
8. Have a first aid quiz contest.
9. Discuss how, by using improper action, additional damage may be done to an injured person.
10. Discuss pupils' camp experiences in relation to first aid in emergencies.
11. Have a demonstration of techniques by boy scouts and girl scouts who are qualified in first aid.
12. Keep a first aid kit in the classroom and have a "first-aider" elected each week or two from the class, who observes procedures for "caring for" minor emergencies.
13. Prepare a safety and first aid handbook for room and playground use.
14. Dramatize action in case of an emergency; have one student dramatize basic first aid and another the behavior of an observer.
15. Discuss ways of securing adult aid without leaving injured person.

Knowledge and practice of safety rules in recreational activities helps prevent accidents.

1. Display pictures of recreational equipment such as canoe, gun, skate, sled, ski, bat, fish hook, etc.; select one item and write good safety practices for using that item.
2. Discuss accepting a dare to do something reckless. Why is a dare given?
3. Prepare and present skit of things not to do while boating or camping.
4. Discuss the following in relation to camping; fire hazards, drinking water, axe and knife safety, hiking, poisonous plants, wild animals in Montana, getting lost in woods, keeping and leaving a clean camp-site.
5. Participate in the following activities pertaining to boating:
   a) make posters of boating laws and regulations. Invite an authorized person in to explain the rules and regulations.
   b) list dangerous boating areas and conditions in your area.
   c) collect newspaper clippings about boating accidents and discuss them.
   d) make a model of a boat showing important parts and its equipment.
   e) develop a glossary or vocabulary list of useful boating terms.
   f) discuss with an authorized person how a boat should be handled safely, including overloading, standing up, etc.

6. Investigate where swimming lessons are being given in the community, and discuss swimming safety including the following:
   a) the need for knowing how to swim well
   b) having supervision whenever young people are swimming
   c) safety procedures for diving, using inflated devices, swimming in ocean or surf
   d) demonstrate various non-swimmer rescue techniques
   e) describe buddy system
   f) staying in water too long and swimming after eating
   g) getting a suntan and going barefoot
7. Make posters of swimming rules.
8. Put up a bulletin board display illustrating safe swimming practices.
9. Write a report on local swimming areas.
10. Demonstrate what to do and what not to do when someone else is in trouble in the water.

Many natural emergencies are presently beyond the control of man.

1. Establish the types of natural disasters that occur, their causes, location of likely occurence and effect on individuals and communities.
2. Discuss and practice safety procedures for your school, for natural phenomena which might occur in your immediate area.
3. Discuss the increased likelihood of accidents due to inclement weather.
4. Invite civil defense or Red Cross speaker to discuss your community's readiness for emergencies or visit local civil defense shelter.
5. Make a bulletin board display of natural emergencies and what would be needed in each of these emergencies.
6. Have local emergency unit members in to explain their functions.
7. Have a health department representative explain the importance of health during an emergency.
8. Prepare lists of foods, clothing, medicine and equipment needed for an emergency.
9. Discuss how your school is involved in the community civil defense program.
10. Learn the meaning of the various civil defense signals and post directions at home and at school.
11. Interview parents and neighbors to find out how well informed the community is on civil defense.

Appropriate responses to hazardous and emergency situations should be studied and practiced.

1. Refer to American Red Cross Jr., Standard and Advanced first aid courses and the Medical Self-Help program for content and learning experiences. Give consideration to grade level and maturity of children in presentation.
2. First aid is easily integrated into other health units, i.e., first aid for burns can come into a unit including the skin, and sunburn; first aid for eye injuries can tie into a unit on sensory organs.

Seventh-Ninth Grade Levels

There is a necessity to recognize and show respect for potential dangers inherent in some school activities.

1. Determine how safety lessons learned in chemistry, home economics, agriculture, physical education, athletics, and industrial art classes can help later in the home and on the job.
2. Discuss the importance of training rules and routine.
3. Investigate derivation of the word "accident."
4. By committees, make lists of types of accidents that may result from improper actions while participating in each of the various school programs.
5. Determine the relationship between these accidents and similar ones that may occur outside of school and report orally to class.
6. Invite the school nurse to discuss accidents as a cause for school absence.
7. Study losses both in money and in man hours to our economy resulting from poor safety practices.
8. Invite the safety director of a local plant to discuss safety in industry.

There are potential dangers in most normal living activities, but with proper precautions, most dangers can be avoided without too many restrictions on the actions of most people.

1. Demonstrate possible accidents caused by haste or speed.
2. Dramatize accidents to the human body that could be caused by misjudgment of physical inadequacies or frailties.
3. Write or tell of accidents caused by practical jokes.
4. List possibilities of accidents from improper use of machines, equipment, or appliances.
5. Use buzz sessions to compile a wide list of seasonal hazards.
6. Discuss possible accidents caused by improper lighting.
7. Draw safety posters illustrating possible injuries caused by unsafe or unfamiliar equipment.
8. Invite speaker from electric company to discuss safety and electricity in home.
9. Research the area of superstitions about remedies for illness and accidents.

Prevention of traffic accidents is a responsibility of pedestrians and drivers.

1. Consider accident records of teenage drivers.
2. Collect and display pictures of various designs for road safety, such as under-passes, clover-leaf, intersections, circles, turn lanes, etc.
3. Discuss the value of lights, signals, painted lanes, one way streets, etc. in relation to road safety.

4. Discuss the laws dealing with learner permits, license requirements, etc.
5. Divide into small discussion groups and draw up lists for being a good pedestrian; develop master list on blackboard.
6. Have each group construct a situation which has potentials for a traffic accident; exchange situations with other groups. Role play or discuss the necessary factors for preventing that accident from happening. (Include courtesy, emotions and attitudes in discussion.)
7. Develop a "what's right and what's wrong" display using pictures, diagrams, photos, drawings.

Knowledge and practice of safety rules in recreational activities prevents accidents.

1. Select panel of athletes in various sports to discuss with class, measures taken to prevent accidents. (swimming, golf, soccer, field hockey, archery, etc.)
2. Investigate accidents that occur in organized and unorganized recreational activities. Discuss implications.

Knowledge of handling of firearms and explosives is important to the enjoyment of a potentially hazardous recreational activity.

1. Dramatize proper gun handling.
2. Take gun apart and label basic parts.
3. Make rules and posters for hunter safety.
4. Dramatize proper hunting procedures.
5. Invite a local game officer to talk about game laws and property damage.
6. Prepare a chart showing range of various sizes guns and different types of ammunition.
7. Display proper clothing and equipment for hunting.
8. Display on bulletin board types of explosives including fireworks, blasting caps, dynamite.
9. Discuss your state laws in relation to explosives.
10. Discuss the pros and cons of recent national or local gun legislation.

Many needless incidents can be avoided by exposure to the elements of good water safety instruction.

1. Review the dangers encountered by good swimmers. (cramps, exhaustion, current, diving in unknown waters).
2. Use bulletin board displays of procedures in prevention and care of sunburn and sun lamp burns.
3. Use newspaper clippings as basis for discussions on boating safety.
4. Discuss local opportunities for improving swimming and boating ability.
5. Visit nearby pool for session in elementary rescue techniques.

Accepting the responsibility for baby-sitting means having certain knowledges concerning safety and first aid.

1. Ask local pediatrician to work with students to develop a code for baby-sitters.
2. Discuss why maturity in judgment is a prerequisite for a baby-sitter.
3. Construct a baby-sitting notebook with the following information:

a) emergency telephone numbers

b) general characteristics of children, 1-2, 3-4, 6-11; follow with tips to baby-sitters on how to handle children, accidents to anticipate, etc.

c) outline possible first aid that will be needed.

d) snack suggestions, games, stories for different age groups.

4. Write situations that occurred while baby-sitting and place in box. Draw situation from box and discuss what was done or should have been done.

5. Organize a panel of parents and students and discuss what parents expect of a baby-sitter, and what a sitter needs from parents. Involve students from Home Economics or Child Development classes who have had experience in caring for children.

Note: In order for up-to-date techniques, methods and content to be taught, all teachers should be aware of the most recent resource material. It is recommended that the official American Red Cross Junior First Aid course be followed.

The knowledge of what not to do is as important as knowing what to do in an emergency situation.

1. Develop the definition of first aid with pupils.
2. Discuss reasons for studying first aid.
3. Illustrate various types of injuries using bulletin board displays of drawings.
4. Have students demonstrate methods of controlling bleeding.
5. Secure copies of X-Ray films from local hospital or doctor's office to demonstrate fractures.
6. Contact local Red Cross chapter to see if "Resusci-Anne" is available for practice of mouth-to-mouth resuscitation.
7. Design bulletin board display to show causes of/and first aid practices for the relief of shock.
8. Discuss the treatment of burns.
9. Have each student conduct survey of items in home medicine closet. Identify contents as: outdated, possibly dangerous; necessary; missing.
10. Have committee reports on common home poisons and their antidotes.

Emergencies can involve whole families or communities.

1. Relate the study of Civil Defense techniques to Junior Red Cross Course.
2. Survey areas around school and home for protection in the event of man-made or natural disaster.
3. Draw up a plan for family protection or evacuation in case of emergency or disaster.
4. Develop confidence through practice of first aid techniques as means of protecting self and others.

Tenth-Twelfth Grade Levels

Accidents account for great losses of time, money and human resources.

1. Develop "characteristics lists" of the accident-prone man versus the safety-minded man.
2. Study accident facts and other materials from National Safety Council.
3. Develop bulletin board displays on accident rates at different ages for boys and girls' injuries from accidents; comparison of deaths from diseases and accidents, etc.
4. Hold panel discussion of the relationship of personality to accidents.
5. Invite speakers such as the industrial arts supervisor, coach, physician, etc., to discuss accidents in their fields.

Certain factors contribute to home and school accidents but action can be taken to cut down the toll.

1. Discuss student practices that may lead to accidents in cafeteria, halls and other areas.
2. Analyze school accident reports.
3. Organize a school safety campaign.
4. Discuss specific problems of the aged.
5. Take pictures of home hazards or make a model of unsafe home conditions. Discuss ways of avoiding or correcting home hazards.
6. Discuss or demonstrate use of knives, hand tools and power tools.
7. Display household poisons that students find in their homes.
8. Survey homes as to hazards and how to eliminate them.
9. Invite a member of the Fire Department to speak on fires in the home.
10. Invite a local fire department to demonstrate speed at which fires may start and spread.
11. Demonstrate how to use different types of fire extinguishers.
12. Demonstrate proper method of cleaning a rifle, pistol or revolver.

Recreational activities can be safer and more enjoyable through knowledge and practice of safety rules.

1. Discuss the relationship of accidents, rules, equipment and courtesy.
2. Compare recreational opportunities today with those fifty or one hundred years ago.
3. Collect newspaper or magazine clippings of different recreational accidents. Discuss how these might have been avoided.
4. Write rhymes or slogans for use in recreational safety.
5. Photograph recreation activities and design a bulletin board display.
6. Discuss local and national groups which promote recreational safety. Include discussion of function of the National Safety Council.

7. Make arrangements to develop individual ability in swimming and life saving.
8. Have a representative of the American Red Cross speak to the class on water safety.
9. Study boating and canoeing accidents; their causes and prevention.
10. Invite a National Rifle Association Gun Safety Instructor to speak to the class.
11. Have a committee arrange a display for the bulletin board on safety measures in seasonal activities; such as skiing, water skiing, tobogganing, mountain climbing, biking, camping and hunting.
12. Analyze school physical education and athletic accidents.
13. Have volunteers examine sporting equipment and report on protective devices.
14. Invite the physical education teacher to discuss how good physical condition and acquiring physical skills are important factors in avoiding accidents.
15. Select an area of recreation to investigate. Write a paper on knowledge and skills needed to enjoy the activity. Stress the hazards that are minimized by this knowledge and skill.
16. Investigate industrial programs toward accident prevention.
17. Discuss relationship of mental health to safety education.

Highway safety is primarily the responsibility of the individual driver.

1. Contrast day and night driving as related to use of the eyes.
2. Make a series of posters which illustrate various personality traits and their possible effect on driving or walking.
3. Make a chart on various reaction times and stopping distances.
4. Write a description of good drivers and bad drivers that you know.
5. Interview a number of drivers and report on methods they use to ward off fatigue while driving.
6. List and discuss permanent physical defects. Which ones affect securing a license.
7. Discuss the penalty in your state for driving while under the influence of liquor or drugs.
8. Draw up a list of the characteristics of a poor driver.
9. Investigate the availability of "Defensive Driving" courses in the neighborhood.

Most highway accidents are preventable.

1. Investigate the relationship of the following factors to automobile accidents. Share findings through reports, charts, displays, bulletin boards, etc:
   a. Age, male, female.
   b. Rural and urban areas, freeways.
   c. Eyesight (Color blindness), fatigue and other physical conditions.

d. Menstruation.

e. Drugs and alcohol.

f. Condition of car.

g. Weather conditions, time of day, road conditions.

h. Driving attitudes.

i. Suicide and homicide — traffic fatalities.

j. Driver education.

k. Physical Handicaps (special equipment on cars)

2. Invite a resource person to discuss "Defensive Driving" and to give perception tests, reaction time tests, etc.

3. Determine various causative factors of accidents.

4. Obtain accident information forms from police or insurance agency and study its provisions.

5. Find a newspaper describing an automobile accident and fill in the details in the accident form.

6. Stand at a busy intersection for 20-25 minutes and make a list of traffic infractions observed.

7. Visit a traffic court and report to class on types of violations producing most convictions. Discuss verdicts and penalties.

8. Invite an insurance agent to discuss various types of coverage and to compare tests for different classifications and age groups.

9. Develop through class discussion a list of physical factors which may affect one's driving.

10. Analyze the possible reasons why a driver speeds, races other cars, etc.

11. Discuss whether one should drive home after drinking and, if not, what are the alternatives.

12. Discuss what you would do if you were to be a passenger in a car of a driver who had been drinking.

13. Demonstrate drunkometer used in evaluating alcohol concentration in the blood.

14. Have a group visit local police station to use reaction testing equipment.

Car Manufacturers and Highway Safety Engineers share responsibilities for safety standards.

1. Discuss the following:

   a. some of the jobs in which driving is essential. Prepare a list showing those partially or wholly dependent on cars.

   b. Changes in social life which have been brought about by the motor car.

2. Make a collection of pictures showing the development of the automobile from 1892 to the present time.
3. Find information and report on:
   a. the manufacturing of safe cars.
   b. the various types of seat belts.
   c. car maintenance and accidents.
   d. laws relating to long or wide loads (boat trailers, trucks, mobile homes).
4. Collect or take pictures of modern highway engineering projects and explain safety features shown in the pictures.
5. Interview school bus driver and find out safety requirements for school buses.
6. Interview a truck driver and report some of the interesting things about his job including driver selection and training programs; state examinations, requirements of the professional driver.
7. Take own car to Highway Department Inspection Station. Report back to class which parts of the car this check includes and why these are checked.
8. Investigate through committee activity, sunglasses, tinted glass, safety glass, and visors as to their effectiveness in protection of the eyes. Discuss what decisions you would make in purchasing from the results of the investigation.
9. Discuss "bicycles and motor bikes are more hazardous than cars". Investigate regulations concerning motor bikes and motorcycles.

Pedestrians and cyclists have certain restrictions and rules of behavior which can affect safety on the road.

1. Observe pedestrian behavior at a busy intersection and make a list of bad practices. Suggest an educational program that would help improve the situation.
2. Make a graph showing the most common causes of pedestrian mistakes.
3. List mistakes made by cyclists on city streets.
4. Find out in own class how many have had accidents or violations while riding cycles.
5. Discuss the influence of weather on pedestrian safety.
6. Discuss the responsibilities of pedestrians on highways.

A responsible citizen prepares himself for emergencies and disasters.

1. Refer to American Red Cross Standard and Advanced First Aid Courses and the Medical Self-Help Program for content and learning experiences.
2. Compile a list, through discussion, of possible emergencies each individual should be prepared to meet. (Base on observation and experience of class members.)
3. Organize into groups and investigate selected topic. Demonstrate selected emergency or disaster procedures.

Many community resources help promote safety.

4. Incorporate first aid and disaster training whenever opportunity comes up in other areas of health education.

1. List local, county or state groups which help promote safety. Investigate and report the activities of each group. (Red Cross, Safety Council, Health Department, Automobile Club, Police Department, Insurance Company, Industry, etc.)

2. Invite representatives from selected groups to meet with class. Prior to visit, submit questions from class to speaker.

SUPPLEMENTAL MATERIAL
OPPORTUNITIES FOR TEACHING
SAFETY EDUCATION

1. SEASONAL

   FALL

   1. Playing out-of-doors safely, school playgrounds, hikes
   2. Halloween safety
   3. Fire - dry leaves, grain fields, barns, forests
   4. Hunting season
   5. Football

   WINTER

   1. Winter hazards - sledding, ice-skating, snow ball throwing, dangers of exposure, icy streets, sidewalks.
   2. Fire - Christmas trees, fireplaces, home heating, kitchen stoves, electric shock.

   SPRING

   1. Fire - "Clean-up" fires
   2. Playing out-of-doors safely (climbing, cycling, skating)
   3. Kites
   4. Rainy Days

   SUMMER

   1. Fire - electrical, forest, campfires, grills, Fourth of July
   2. Vacation hazards - polluted water, poison plants, sunburn, sunstroke, boating, camping, swimming, hiking; hot weather activities - picnicking, going barefoot, fishing

2. SPECIAL OCCASIONS:

   Classroom and playground emergencies, neighborhood fires, hurricanes, floods

3. HOLIDAYS:

   Halloween, Christmas, New Year's Day, April Fool's, July 4th, vacations

4. NATIONAL CAMPAIGN WEEKS:

   Fire Prevention Clean-up

OPPORTUNITIES FOR INCREASING AN AWARENESS OF SAFETY PRACTICES

1. Safety Patrols
2. Safety Councils
3. Assemblies
4. Fire Drills
5. Safety Inspections
6. "Hazard Hunts"
7. Develop Safety Songs and Slogans
8. Poster Contests
9. Pupil Leaders, Gym, Classroom, Play
10. Bicycle Club
11. Bicycle Rodeo

SELECTED RESOURCES

Emergency Medical Services Bureau, Montana State Department of Health and Environmental Sciences, Helena, Montana 59601

Montana Highway Traffic Safety, 227 W. Lyndale Avenue, Helena, Montana 59601

Montana Highway Patrol, 1014 National Avenue, Helena, Montana 59601

Western Area, American Red Cross, P.O. Box 3673, San Francisco, California 94119

Montana Red Cross

Montana Safety Foundation, 227 W. Lyndale, Helena, Montana 59601

Civil Defense, Defense Preparedness Agency, Room 3-E, 346 Pentagon, Washington, D.C. 20301

Highway Users Federation for Safety and Mobility, 1776 Massachusetts Ave., N.W., Washington, D.C. 20036.

Safety Director, All State Insurance Company, All State Plaza, Northbrook, Illinois 60062

U. S. Department of Transportation, National Highway Safety Administration, Washington, D.C. 20590

National Commission on Safety Education, National Education Association, 1201 16th Street N.W., Washington, D.C. 20036

Montana Civil Defense, Department of Military Affairs, P.O. Box 1157, Helena, Montana 59601

Office of the Superintendent of Public Instruction, Traffic and Safety Education, Mitchell Building, Helena, Montana 59601

National Fire Protection Association, 60 Batterymarch Street, Boston, MA 02110

Instructional Materials Laboratories, 200 Madison Ave., New York, N.Y. 10016

MENTAL HEALTH

Rationale for Unit: Mental health combines a reasonable degree of self-knowledge with the ability to manage one's environment in both a satisfying and growth-producing way. A balanced person possesses a realistic perspective of himself as a whole person and relates effectively to other people in general and to the world at large.

Sound mental health is not a separate entity and cannot be taught as such. Rather, it is but one aspect of total health, and cannot be considered apart from physical and social well-being. What a person esteems himself to be affects and is affected by both of the above.

The role of the teacher is not that of a psychologist and does not involve clinical diagnosis, nor treatment of any known aberrations. The teacher must continually strive for insight into his own personality before he is able to contribute positively to another. What he is becomes as important as what he does! The teacher's responsibilities begin with the realization that teacher-student relationships have a direct bearing in either a positive or negative sense on the child's thought processes and behavior. Further, the teacher needs to impart comprehensive knowledge and cultivate wholesome attitudes which will equip the student to deal with life situations. His growth in factual information should lead to wiser and more mature decisions personally and a more meaningful interaction of individual, family and community.

This unit correlates well with Human Sexuality and Family Life Relationships. Many of the concepts of personality growth and interaction are tightly intertwined and inseparable.

Basic Concept: Mental health is a continuous thread of total health. It combines within the person realistic perceptions of self and the world and should assure positive and productive interaction of: Man with himself, Man with other men, Man and his environment.

CONCEPTS

Kindergarten-Third Grade Levels

"You" as a person are very, very important!

Everyone is different. You can do certain things well — better than others — yet some can do things better than you can.

You should be proud of those things you do well.

Responsible behavior is a part of growing up. Improving behavior tells others you are growing up.

Feeling sad and happy are part of life; one's adjustment to these feelings in ourselves and others is most important.

Respect for the rights and property of other people as well as my own.

There is a difference in tattling and real concern for the things people do.

SUGGESTED ACTIVITIES

Plan a booklet that will use pictures from baby days to present age.

Use pictures on a bulletin board THEN, (baby picture) and NOW (up-to-date picture).

Plan a self-portrait using yarn, pipe cleaners, scraps of yard goods, buttons, etc.

Draw pictures of things you like to do.

Demonstrate things which you can do now that you could not do when younger.

Compare specific differences in pets, flowers, people.

Bring in pictures of children engaged in different types of activities.

Talk about what you would like to be when you grow up.

Draw a picture of you doing things you like to do and do well.

Make up a story about helping at school and at home.

Bring to school things you have done — painting, sewing, etc.

Develop displays of children's work.

Read stories that will illustrate children whose behavior indicated they were growing up.

Plan a discussion about responsibilities at home.

Make a class list of desirable behaviors at home, school and at play, encourage weekly checking of behavior practices and suggestions for improvement.

Conduct a discussion of traits the children evaluate in others as acceptable.

Talk about times when you are glad and times when you are sad and the things that cause you to feel this way.

List the things we can do when we feel upset.

Discuss how to help other people when they are sad.

Develop the idea of "putting oneself" in another's situation.

Collect pictures of people showing respect for one another.

Make a list of things you must do and not do with regard to family and friends.

Discuss punctuality, game rules, taking turns, sharing, etc.

Discuss the babyishness of tattling. Compare with situations involving a student or a citizen that must be told.

Fourth-Sixth Grade Levels

With growth, development and desire for independence comes also the need for an acceptance of responsibility.	Discuss the outcomes and hazards of **not** caring for possessions. Discuss one's responsibilities now and list suggestions on how to increase personal responsibilities. Create and role play stories involving self-reliance. Engage in group "buzz" sessions on how to make one's own decisions, to be a good leader and a sensible follower. Develop a list of class "chores," change weekly.
Development of habits contribute to one's mental health.	List your study habits - develop a list of good habits suggested by class members - contrast, compare and discuss. Discuss habits developed in language, behavior, dress, chores, etc.
Everyone has certain gifts — and using these gifts can be very satisfying.	Discuss ways of being creative and using one's talents. Art or social studies may prove good areas to develop projects and correlate this idea. Write a play permitting the students to direct and plan it as far as they are able. Use students according to their talents. Afterwards discuss and bring out how together many talents were used for the enjoyment of all. Encourage students to do some writing in poetry, essay or develop expression of interests through art, music, physical education, etc. Propose hypothetical problem situations and assist students in developing a solution using the thoughts and ideas of many.
Consideration for others is a healthy "growing up" sign.	Use role-play to dramatize how a person can ease the hurt feelings of another; discuss how to prevent hurting them. List "behaviors" of growing up. Construct a list of the characteristics which help one to be admired and get along well with others. Develop self-check.
Differences in people require another's respect and understanding.	Discuss the several races and cultures of people. Develop reports on each race represented. Role play how it feels to be different from others in terms of religious beliefs, race, culture and customs. Discuss how such differences demand understanding. Set up some type of exhibits representing different faiths, races, and countries. Compare the cultures of many lands.
Emotions such as fear, love, hate, jealousy, have a variety of expressions.	List things which people validly fear, e.g. war, earthquakes, illness. Discuss reasons which cause these fears to develop. Illustrate "things I love:" my pet, my bicycle, my favorite food. List "my 10 favorite things" — kittens, toys, moonlight, ice cream, my mother, my father, etc. Develop a paragraph or two on: "When I wanted something I couldn't have." Role play and discuss negative emotional behavior.

Anger, hate, frustration do occur and can be controlled or accepted.

Compile a group of pictures showing anger, sadness, hate, love, joy, and discuss them. Develop stories which could relate to the picture offering suggestions as to why each emotion is expressed.

Discuss "hate;" indicate its inherent dangers.

List suggestions on how to control these emotions.

Discuss wholesome outlets for "pent up" anger, letting off steam and tantrums, e.g. taking a walk, straightening your room, reading a story, etc.

Friendship is a great joy and one of man's greatest gifts.

Write a paragraph on, "The Quality of Friendship."

Discuss forgiveness of others; the difficulty and joy.

Honesty and dishonesty influence behavior.

Analyze the effects of dishonesty, the personal gain in being honest.

Compare cross-cultural concepts of honesty.

Rules and policies have a definite and important place in your life.

Conduct a panel on school rules.

Involve the nurse, librarian and principal in a panel on rules which govern their area.

List rules which influence our behaviors at home, church, and community.

Confidential discussions often provide solutions to seemingly difficult problems.

Discuss the idea of keeping confidences.

Discuss the characteristics of people with whom you could discuss a serious problem.

Seventh-Ninth Grade Levels

Self-respect comes from within you and does not come from material possessions.

Discuss the lives of individuals such as Lincoln, Helen Keller, Marie Curie, Glenn Cunningham, etc.

Panel discussion on "The person I most admire — Why?" or "People I Love."

Write a paper on, "The Most Unforgettable Individual I Have Ever Known."

You are a "self," involving physical, mental, emotional, spiritual components that must function as an integrated whole.

Identify the basic human needs and discuss how these needs are met (love, security, acceptance, etc.)

Illustrate through role playing appropriate and inappropriate expressions of these emotions.

Have a panel discussion on the specific role of each area of self, stressing the imbalance of personality which may result from the overindulgence of one area and the underdevelopment of another.

Compile a collection of newspaper and magazine clippings that deal with cases involving conflict with emotional and social needs, (particular emphasis on young people). Suggest possible preventive measures and probable situations.

Sound mental health means being on "good terms with yourself," accepting others as they are, and meeting the demands of life as best you can.

Discuss the impact of self-respect and mental health.

Individual differences and group conformation both imply strong emotional impacts on one's emotional structure.	Discuss problems in general and compare those which are within the area of control, those which are beyond it and the value of adaptability or the courage to "accept what cannot be changed." Write a composition "Me, as I see Myself," or "Me, as I would like to be." The composition may be inclusive of both thoughts. Invite a psychologist to explore the realm of self-acceptance and acceptance of others as they are. Write a theme on, "When does the right to differ infringe on the rights of others?" Develop a panel on peer-group influence; how to evaluate and participate in fads; and/or how to react to non-acceptance by one's peer group. Discuss the strengthening of a group by positive contributions of individual members.
Your personality develops as a continuing process. **Roles and responsibilities change as you mature and your behavioral choices carry inherent responsibility for consequences.**	Give examples of how experiences modify our views of self, others, the world, successes, failure, new knowledge, people, science, etc. Discuss the possible outcome of imprudent behavior, e.g. driving, cheating, drinking, petting, etc. Correlate defense mechanisms used to avoid personal responsibility for the consequences. Establish buzz sessions to evaluate problem areas regarding behavioral responsibilities.
Your problems and frustrations are individual, yet all people of all societies deal with conflicts of a similar nature.	List problems you feel are the same the world over. Discuss reasons for the similarities noted.
Help is sometimes necessary in resolving one's problems.	List and describe the services of persons to whom you may turn when problems arise. Invite counselors, clergy, social agencies and representatives to visit the classroom for purposes of discussing the availability of help for students who cannot help themselves. Conduct a student survey to determine how often students utilize guidance in solving their problems and if not, why not?
Misconceptions develop regarding the true nature of mental illness which are barriers to realistic attitudes of prevention and treatment.	Explore studies on epilepsy, cerebral palsy, deafness and muteness to show the fallacy of direct relationship between these problems and mental and emotional maladjustments.

Tenth-Twelfth Grade Levels

Personality is a composite of one's total being.	Have committee investigate the influence of heredity, environment, health and education on the personality. Examine the implication of a statement such as: "She has no personality."
Goals and objectives must be realistic to be meaningful.	Invite your guidance personnel to speak on aptitude tests, vocational testing, standardized testing.

Your personal values emerge as a result of family influence and other varied experiences.

Investigate broadening educational standards needed to launch successful careers.

Discuss how the qualities needed for success might be developed in the context of a changing economics.

Make a check-list of personal and/or family values and discuss the basis for them.

Form a panel to debate how value systems affect behavior patterns — examine positive and negative persistence in completing a job, cheating, pre-marital pregnancy.

Discuss through buzz sessions such topics as: "Does having the courage of one's convictions mean one is stubborn?" and "Everybody's doing it."

Individuals affect and are affected by other individual's mental health.

Define constructive and destructive criticism.

Investigate the difficulties of truly objective criticism.

The emotional climate of society in general, and the home, school and community specifically affect one's mental balance overtly or covertly in many ways.

Discuss the emotional needs of children and ways in which they can be satisfied.

Discuss mother-father employment and its effect on the "climate" of the home.

Investigate the Harlow Studies involving the rearing of baby monkeys.

Discuss the meaning of cultural deprivation.

Examine the effect of peer-group ostracism.

The cultural environment in which one is raised conditions the individual.

Examine "normality," its determinants and effects as conditioned by environment.

Discuss "What is Reality?" in buzz session groups.

Examine the effect of one's self-image on self and others.

Compare and contrast cultures of other countries with their environmental conditions.

Mental illness is varied in cause and degree and methods of treatment.

Investigate the differences in the symptoms of a hypochondriac and those of psychosomatic origin.

Examine and chart the types of ailments that have emotional undertones.

Develop a list of sound mental health habits.

Mental illness occurs at all ages, to both sexes and persons irrespective of social class or status.

Examine statistics on mental illnesses and the trained personnel involved in their treatment.

Examine the differences between mental illness and mental retardation.

Research is the key to continuing progress in the treatment of mental illness.

Investigate research advances in such areas as measles, prenatal care and birth injury.

Maturity is the ability to deal with situations of your life in a realistic and effective way appropriate to your age level.

Self-check on signs of mature behavior.

a) handling of money wisely

b) sound study habits

c) good rapport with parents and teachers and peer groups

d) ability to decide for oneself rather than to accept group decisions

e) ability to trust and be trusted

f) share yourself with another person

g) sense of integrity

Feelings of insecurity, self-consciousness and lack of confidence are not atypical.

Discuss the conflicts and suggest ways of lessening tensions involved.

Invite a psychologist to meet with the class.

As young adults, establishment of responsible relationships creates a sound sense of well-being.

Discuss and expand the term "responsible relationships," as it relates to such areas as:

a) premarital pregnancy

b) background — emotionally, educationally, economically, socially

c) circumstances of situation

d) before a resolution is reached determine if it is best for all concerned under the circumstances at this particular time.

Create problem situations and discuss possible ways of resolution.

To be part of society is to be involved.

Discuss the idea of non-involvement regarding the needs of others.

Collect for discussion or debate current news items involving incidents of involvement or lack of involvement.

The need for security should be balanced by the need for achievement.

Explore the idea that achievement is a **need** throughout life.

Structure a panel on ways of achieving other than intellectually.

Adjustment mechanisms are used by people with unsatisfied emotional needs.

Investigate the following adjustment mechanisms:

Rationalization
Sublimation
Repression
Projection
Identification
Substitution
Withdrawal
Day Dreaming

Present oral reports on those which are used most frequently by students.

Proper handling of emotional problems requires constant sensitivity to self and others.

Discuss ways of keeping a wholesome balance; e.g., develop interests, be cooperative, maintain social relationships.

Develop a paper on your philosophy for sound mental and emotional health.

MENTAL HEALTH

Selected References and Resources

The following selected references and resources are suggested to supplement and enrich this unit.

1. Bauer, W. W.; G. G. Jenkins; H. S. Shacter; E. T. Pounds; THE NEW HEALTH AND SAFETY. (Fair Lawn, New Jersey, Scott, Foresman and Company, 1966).

2. Irwin, Leslie W.; Harold J. Cornacchia; and Wesley M. Staton; HEALTH IN ELEMENTARY SCHOOLS. (St. Louis: C. V. Mosby Company, 1966).

3. Mental Health Materials Center, 419 Park Avenue South, New York, New York 10016.

4. National Association for Mental Health, Inc., Director of Education and Program Services, 10 Columbus Circle, New York, New York 10019.

5. Schifferes, Justis J., HEALTHIER LIVING. (New York; John Wiley and Sons, 1965).

6. School Health Education Study, HEALTH EDUCATION: A CONCEPTUAL APPROACH TO CURRICULUM DESIGN. (St. Paul: 3M Education Press, 1967).

7. United States Department of Health, Education and Welfare, Children's Bureau and Public Inquiries Branch, Washington, D.C. 20201.

CONSUMER HEALTH

Rationale for Unit: Consumer health is influenced positively by reliable information, ethical medical services, accredited hospital and clinic facilities, medically approved products, and negatively by medical quackery, faddists, false and misleading advertising, self-diagnosis and mail fraud. The consumer needs accurate knowledge, appropriate attitudes, and recommended practices for optimum health. The school affords the opportunity for students at all ages to become aware of the positive and negative elements of consumer health, and to learn to become decision makers in regard to their own health and the health of their community. The educated consumer is his own best protection.

CONCEPTS

Kindergarten-Third Grade Level

Protective measures are taken to make certain that food is safe to eat.

Foods are packaged and stored to keep them clean and healthful.

Milk requires proper handling from the farm to the table to insure it is safe to drink.

Government agencies are involved in the protection of meat.

Advertising often affects what we buy, thereby affecting our health.

Health information, whether correct or incorrect, may come from various sources.

Safety precautions must be observed with the use of medicines and unknown substances.

Fourth-Sixth Grade Levels

Emotions, family patterns and values influence selection and use of health information, products and services.

SUGGESTED ACTIVITIES:

1. Visit a nearby grocery store. Discuss government inspection and regulations controlling food safety.
2. Visit a local restaurant or drive-in. Discuss the various ways in which food is kept safe for customers.

1. Demonstrate with the use of various food containers how food is kept safe to eat.
2. Discuss how fresh fruits and vegetables are transported and handled in the market place and grocery store.
3. Have students develop a list of foods that are stored in their refrigerators at home and those that are stored in cupboards and discuss reasons for storage in either place.

1. Visit a milk company or dairy to see pasteurization of milk and the precautions taken to insure safe milk delivery.

1. Bring in a sample of a government meat stamp. Discuss how the government protects the meat we buy.

1. Have students list three health products they see on TV, and discuss the merits of each.
2. Have students cut out pictures of three health products from popular magazines. Discuss whether these products are used by the families and why or why not.

1. Discuss the many different ways in which children learn about health, such as television, radio, newspapers, health professionals, family members.

1. Discuss the use of medicine, such as taking what the doctor prescribes and taking only from a responsible adult.
2. Have students identify several potentially harmful products found in the kitchen, bathroom, and garage, and discuss why they are dangerous, and how they should be used properly.
3. Ask students to list three over-the-counter drugs which are found in their homes. If students have used any of them, discuss why and how they were used.

1. Have students collect clippings of advertised products and identify words that have emotional overtones. Point out ways people are influenced to buy and use these products.
2. Tape record radio or television commercials relating to children's health, and help children evaluate the advertising.

Religious beliefs, customs, superstitions, faddism, cults, and family influence consumer buying.	3. Have children role play "the medicine man of the old west," using appeals of promises of miracles, fear, etc. 4. Ask children to find an example of endorsement of a "health" product by a famous person, and discuss this kind of influence on the consumer. 1. Ask students to check with parents, grandparents, neighbors about some superstitions regarding health practices with which they are familiar. 2. Have students develop a list of health customs from another country or culture.
Many health agencies and organizations serve, protect and inform the consumer.	1. Develop a bulletin board display using health protection activities provided by community, state and national agencies. 2. Ask a local sanitarian or other health worker to discuss his or her role in protection of community health.
Laws and regulations protect our health and the health of others.	1. Discuss the role of national and international agencies such as the Food and Drug Administration, Department of Agriculture, Public Health Service. 2. Secure copies of regulations from the State Health Department which deal specifically with health protection and discuss. 3. Obtain information from the State Health Department regarding the product labelling law. Bring a label to the classroom and discuss its contents in light of the labelling law.
Possible harm can result from self-diagnosis, self-medication, and the careless ingestion of drugs, medicines and other substances.	1. Discuss the difference between food facts and misinformation. Ask students to report on current magazine and newspaper articles. 2. Invite a pharmacist to speak on new drugs and certain manufacturing and safety precautions.
The physician's and pharmacist's advice and assistance are important in taking prescription medicines.	1. Invite a school nurse, pharmacist, or physician to discuss the safe use of prescription medicines. 2. Encourage students to conduct a student-parent "clean out the medicine cabinet" campaign, and report to the class the results of individual efforts.
Health specialists contribute to good health.	1. Ask several students to gather material about various health specialties, and present information to the class about one specialty in which they are particularly interested. 2. Identify and describe the special work of different physician specialities. 3. Assign students to gather information about quackery in regard to such diseases as cancer and arthritis. If possible, include pictures of gadgets claimed as cures.
Many individuals have contributed to the good health we have today.	1. Have individuals report on persons who have contributed to medical research (Pasteur, Lister, Fleming, Reed, Salk). 2. Ask the school nurse to discuss available school health services.

Seventh-Ninth Grade Level

Health misinformation is based on superstition, fear and ignorance.	1. Ask students to collect and report information on primitive beliefs about the prevention and cure of disease. 2. Discuss current fallacies connected with health knowledge, attitudes, and practices. Try to trace the origin of these. 3. Have students select three misleading advertisements, and research scientific facts that disprove their claims. 4. Assist students in preparing criteria to use in evaluating accuracy of health advertisements.
Health agencies contribute to solving health problems.	1. Discuss the differences between official and voluntary health agencies. 2. Have students select an official or voluntary health agency and report on the organizational structure, budget, and program of each.
Many types and variants of drugs and health products are available to consumers.	1. Invite a pharmacist to define and discuss proprietary medicine, prescriptions, drugs, patent medicines and nostrums. 2. Discuss the role of the modern pharmacy in making and preparing medicines.
Self-diagnosis and self-treatment can endanger health.	1. Discuss medical folklore, old wives' tales and superstitions and evaluate how these misconceptions could impair health. 2. Discuss hazards of self-diagnosis and self-medication. 3. Have a student research and report on the testing role for new products of the Food and Drug Administration. 4. Have the class list and discuss the proper use of products used in their homes which are sold over drug counters, e.g., deodorants, skin medications, hair removers, dyes, mouth wash, etc. Examine the advertising for each of these and their claims and safety in use.
Knowledge of personal health and accident insurance is important in case of serious injury or illness.	1. Ask students to check with parents to see if student has health or accident insurance. If so, do they carry identification? 2. Have students prepare medical identification cards. Indicate health insurance coverage and pertinent emergency information such as blood type, allergies, etc.
Special dietary foods must be informatively labeled.	1. Examine and evaluate advertisements and labels in dietary foods for special uses and directions. 2. Have a student report on the specific labeling of diet foods.

Tenth-Twelfth Grade Level

Availability of health products is influenced by current consumer fads.	1. Search out examples of advertised products in which manufacturers attempt to satisfy a current fad, i.e., curbing smoking habit and controlling overweight.

Health problems are best dealt with by appropriate specialists.	1. Have students select a specific health problem such as overweight, hypertension, dandruff and discuss how they would seek health information and/or medical advice. 2. Have students discuss how they would select a dentist, physician or other health professional if they moved into a strange community. 3. Have students prepare a list of the various types of doctors and other health specialists and explain the function of each.
Self-diagnosis and inadequate safety precautions may endanger health.	1. Review safety precautions in taking medicine, also safety precautions to be taken with medications in the home. Include the importance of reporting unusual reactions of persons to medications prescribed by a physician. 2. Discuss the dangers of ignoring illness and unusual symptoms and the importance of giving accurate information of all symptoms to a physician.
Quackery exists as a threat to health.	1. Discuss the social, emotional and economic reasons why people go to a charlatan. 2. Ask students to investigate areas of quackery such as food, drugs, and gadgets. 3. Discuss criteria for identifying illegal health practices. Discuss where and how to report illegal and unethical practices.
Medical care is an important part of the national and family budget.	1. Have the students become familiar with the various types of medical care insurance. Make a chart displaying various kinds, advantages and disadvantages. 2. Discuss how an individual can evaluate and select an insurance coverage program. 3. Obtain some samples of insurance policies, analyze in terms of their coverage and interpret the small print. 4. Have each student investigate his family's medical cost for a year or his own, including insurance.

RESOURCES

1. Bureau of Health Education, State Department of Health and Environmental Sciences.
2. American Medical Association. **Today's Health Guide**. (Chicago: American Medical Association 1965).
3. **Consumer's Report,** Mt. Vernon, N.Y.: Consumer's Union of United States, Inc. (published monthly).

COMMUNITY HEALTH & ENVIRONMENTAL PROTECTION

Rationale for Unit: Environmental and community health should include presentations and activities related to the historical and contempory development of man's efforts to control environmental and public health problems. Students should explore the nature and scope of public health activities in the United States.

The attitudes and actions of world governments, individually and cooperatively, to disease prevention and control and other major health problems should be included in student learning experiences.

The roles of government agencies, of voluntary and professional associations, and of legislative actions taken to protect the health of consumers are introduced. Emphasis is placed on the importance of knowledge about misleading and fraudulent health practices and how to combat them.

Techniques for recognizing legitimate and competent health personnel, services, and practices, may be introduced as the student becomes an independent health consumer.

BEHAVIOR OBJECTIVES

Kindergarten-Third Grade Levels

On finishing this section, pupils in grades K-3:

—Should understand the concept of environment and appreciate what their senses tell them about their environment.

—Should realize that they must protect themselves from some parts of their environment, in order to stay healthy and safe.

—Should know how to work with others in developing and keeping healthy and safe school, home, and community environments.

—Should know people in their school and community who work together to keep them safe and healthy.

CONCEPTS

The environment is made up of all things around us.

Our lives are affected by various environmental factors.

There are ways to protect ourselves against the effects of the environment so we can live in safety, comfort, and good health.

SUGGESTED ACTIVITIES

Ask children to explore the things around them using all their senses: sight . sound. touch . smell . taste . balance . etc.

List on board all things that make up an environment.

Have children think of invisible things in our environment — germs.

Have children sit quietly with eyes closed. Let them listen to the sounds all around them and tell what they hear (e.g., street noises, other children moving, etc.).

Take a walk around the school area. Have children observe and note all the environmental factors (e.g., the smells, the sounds, etc.)

Have children describe how they are affected by: snow . rain . wind . hard ground and other surfaces . sand . cold weather . hot weather . sun . hills . streams . rivers . noise — from drilling, machines, T.V., etc. . rosebushes . poison ivy . germs . others . air . water.

Discuss why it is necessary to have rules and regulations about: fire drills . equipment . waiting one's turn . keeping room orderly . respecting property of others . other things children name.

Ask a child to explain why he wears a hat, boots, mittens, scarf, etc., when it is snowing.

Discuss how to protect yourself from getting a bad sunburn.

Discuss how you can keep from spreading germs to others by: washing hands, covering coughs and sneezes, keeping food clean and covered, not eating food from others' mouths, etc.

The environment may be a source of pleasure as well as a source of discomfort. Each person has a responsibility to protect and safeguard the environment.

Discuss why we should not destroy natural vegetation; why we do not trample flowers or cut down trees.

Have children draw pictures of their pets or the pets they would like to have. Discuss care of pets.

It is necessary to change some things in our environment in order to remain healthy.

Tell children why and how the water they drink must be changed before it gets to their homes.

Discuss reasons for: cleaning pebbles and rocks off playgrounds . dusting classroom, etc.

Man pollutes his environment in many ways.

Ask children to identify public refuse containers. Where have they seen them? Discuss their function and how used.

Discuss litter and the sanitation problems in and around school, lunchroom, recreational areas, boating areas, highways, parks, playgrounds, etc.

Children and adults must work together to maintain a healthy environment.

Ask children how they can help to keep the environment safe and healthy. Litter . order in classroom, replacing toys, etc. . using water fountains . hanging unworn clothes.

Make up riddles about assisting the: policeman . fireman . doctor . dentist . parents . teachers . etc.

Students, teachers, custodians, school nurse, and other people help keep the school a safe and healthy place.

Discuss what: the school nurse does . the teacher does when she is in the room before students comes . each pupil can do to keep the school safe and healthy . the custodian or janitor does . the principal does.

Ask what would happen if waste paper basket was not emptied or floor not swept, tables not dusted, windows not cleaned?

Have children rotate responsibilities during the year for specific aspects of environmental health - dusting, windows, lights, chairs and furniture, refuse collecting, temperature, ventilation, etc.

At home, all family members must do their share in keeping the home a safe and healthy place to live.

Children tell what they do to keep their home a safe and healthy place to live. Each make a list: carry out garbage . put things away . assist parents with housework . keep room orderly . learn to live with others.

Have each child draw a picture of one thing he does at home to keep it safe and healthy.

Many people contribute to making our community a safe and healthy place to live and work.

Have children name any one in their community they know who helps make the community safe and healthy.

Make a mural showing the workers who provide services for the community.

Have children discuss what life would be like if a service of the community was stopped for a month as: police protection . fire protection . water . electricity . garbage pickup . sewage disposal.

Have children discuss helpers who assist them in having the bread they eat . milk they drink . help to keep them warm.

The doctors and nurses in our community help keep us healthy. It is important to visit the doctor to prevent illness and for treatment when we are sick.

The dentists in our community help to keep our teeth and gums healthy. Their assistant is a dental hygienist. It is important to visit the dentist to treat and to prevent tooth decay.

The school nurse helps to keep us healthy while in school. Always report an injury at the school to the teacher or the nurse.

Ask pupils to demonstrate how to call the fire department and report a fire (from home, school, any place in the community).

Role play and have pupils practice calling the fire department and report fires; other Depts.

Have firemen and policemen or sheriff talk to pupils.

Help students locate helping community agencies on a city or county map.

Have children tell about experiences with the doctor and dentist.

A riddle: Who is he? He gives you a checkup. He is friendly and nice. If you get sick he can help you get well. You should see him to prevent illness. He may give you "shots" to help keep you well. Who is he? Can you guess?

Have children act out calling a doctor in case of an accident.

Who is he? You sit in his big chair. He looks into your mouth. He checks your teeth, cleans teeth. He may take pictures of your teeth. He may fix some teeth. He tells you how to keep your teeth clean and healthy. Who is he?

Have the students make up a riddle about the nurse.

Have the school nurse and/or teacher show how to screen the eyes for vision defects and ears for hearing defects. Height and weight measurements can be taken of each child.

Have children act out something a school nurse does to help children.

Discuss what happens if the school nurse thinks a child may need glasses.

Teaching Aids

Environmental elements: contours . textures . sounds . balance (kinesthetic sense) . air . water . temperature and humidity . tastes . people . animals . objects . fire . vapor . light . darkness . fog . soot . trees . odors . gravity . snow . ice.

Teacher should accentuate the use of senses in evaluating the effects of environment.

Touch		Hearing		Vision
. wet	. stuck	. loud noise	. trucks	. disorder
. cold	. pricked	. soft sounds	. car noises	. order
. hot	. stung	. shrill	. music	. dirt
. chilled	. bitten	. sonic boom	. birds	. cleanliness
. scraped	. silky	. motorbikes	. animals	. beauty
	. furry			

Smell	Taste		
. odors (pleasant and unpleasant)	. sweet	. sour	. bitter

Stress should be placed on the pleasant and unpleasant effects of the existing environment on the individual. The teacher should talk about people adapting to the existing environment.

Protection and control of environment: clothing . housing . adequate nutrition . rest, exercise — resist diseases . immunization against diseases . air conditioning . heating . ventilation . lighting . etc.

Ways of changing environment: engineering . planning . bulldozing . changing land masses . draining ponds . detouring rivers . burning . purifying air . treating sewage . wildlife sanctuaries . planting trees . purifying water.

Stress how many people are now concerned about the pollution of the environment. Children also have a responsibility in this area.

Keeping home a safe and healthy place to live: safe water supply . disposal of waste . garbage storage . orderly placement of equipment . house cleaning . laundering . dishwashing.

People in the community that help make it safe and healthy: firemen . policemen . power companymen . gas companymen . sheriff . highway patrol . engineers . doctors . dentists . nurses . telephone men . grocers . bakers . butchers . health officers . children . parents . others.

Teacher should explain to children the importance of visiting the doctor and dentist periodically for preventive health examinations as well as for treatment for specific ailments.

If possible, a physician and dentist should visit the school and discuss the importance of health and dental examinations with children.

BEHAVIORAL OBJECTIVES

Fourth-Sixth Grade Levels

On completing this unit, pupils in grades 4, 5, and 6:

—Should realize man is an integral part of his environment.

—Should recognize that man has the ability to preserve earth's beauty and benefits through effective planning and appropriate action.

—Should understand that contamination of the environment through abuse is a threat to man's health and future existence.

—Should become aware of the limited resources in the environment which require individuals and communities to handle with care their water sources, food sources, air supply, and waste disposal.

—Should become aware of the health agencies, health services, and environmental programs available to the individual and his community to maintain and improve the environment.

CONCEPTS	SUGGESTED ACTIVITIES
Man is always in touch with the things around him (his environment) which can either improve his health or harm it.	Present a classroom problem children must solve, such as: the classroom is too warm. Call on children to work through a solution in steps: —What is causing it? —What can cool the room? —By using the window pole (latch, transom, etc.) the teacher will alter the condition which is creating discomfort.
A microorganism is any plant or animal that is too small to be seen by the unaided eye. Many microorganisms are present in man's environment, some of which are harmful to man's health.	Expose a moist piece of bread to the air for about an hour; divide into four pieces and put in separate Petri dishes. Keep dishes in a dark place for a few days or a week. The common mold, rhizopus, will develop. Place a small portion of the mold on a microscope slide and let the class observe.
Man has controlled disease producing microorganisms to some extent by such measures as sanitation, improved sewage treatment, immunization, and the improvement of safe water systems.	Lead pupils to discuss ways in which they personally guard against contracting disease. Discuss such terms as: —immunity (natural and acquired) —vaccination and/or innoculation —immunization —filtration —toxins

Conduct the following experiment to show how disinfectants work:

Equipment: alcohol, Lysol, idodine, dried beans, 4 test tubes, sterile absorbent cotton.

Process: (a) soak the beans in cold water, (b) number the test tubes, (c) put several beans in each test tube and cover beans with water, (d) do not add anything to test tube 1, (e) add a little iodine to test tube 2, (f) add a little Lysol to test tube 3, (g) add a little alcohol to test tube 4, (h) stopper all the test tubes with cotton and put them in a warm place for 2 days.

Follow-up: (1) remove the cotton and smell the contents of the test tubes. Discuss: Do any of the test tubes have an odor?

Note: In the experiment on disinfectants, let the pupils get used to the odor of iodine, Lysol, and alcohol if they are not already familiar with these chemicals. When the pupils test the results of the experiment, there may be a trace of the odor of these substances in the tubes. The class will easily identify the odor of decay in test tube 1. As a check on the experiment, let them compare a test tube of boiled water, left stoppered and standing for several hours, with test tube 1. There will be no odor from the boiled water.

(From: Science for Tomorrow's World. The Macmillan Series - Grade 5. Macmillan Company, New York)

What does the presence of an odor indicate? How can you make certain that micro-organisms caused the odor?

Water is a vital part of all living things.

Perform the following experiment which shows water makes up a large portion of food (living things).

Material needed: apple, knife, sliding scale, plastic bag, paper towel.

Process: (1) weigh the apple (suspend in plastic bag), (2) enter the weight in a note-book, (3) cut the apple into small pieces on the paper towel in the sunlight and leave there for several days., (4) weigh the pieces of apple and enter the weight, (5) calculate the weight of water lost by the apple.

Weight of apple _____ .

Weight of apple after drying _____ .

Weight of water in apple _____ .

Make a simple terrarium with small plants. After watering and placing a cover over the top, the water cycle will be evidenced on a small scale. A gallon mayonnaise jar makes a good terrarium.

Have a child write to his city government to ascertain the source of the community water. Locate these areas on a map.

A dependable water source is essential to public health, safety, and recreation.

Have pupils make a list of all the ways in which they use water for a 24-hour period.

Man must protect his limited sources of water.

Discuss such questions as:

—What are the three major drains on the water supply?

—Why does man need to protect water sources if about 70 percent of the earth is composed of water?

Man has numerous methods of purifying water.

Make a model of a water-purifying plant.

Needed: funnel, sand, cotton, about a half an inch of garden soil in a quart jar, another clean quart jar.

Process: Add about a quart of water to the jar with the soil in it, and shake it up so that the water is full of soil. Let the water stand for awhile. Discuss with pupils what happens to the water as the particles settle to the bottom. Place some cotton in the funnel. Put a layer of sand about an inch deep over the cotton. Put the funnel in the clean jar. Gently pour some water from the settling jar into the funnel. Discuss with pupils what happens to the water in the funnel.

Discuss with children the following:

—Filtration often does not remove harmful bacteria from water. Why?

—In what ways can bacteria be destroyed?

All levels of government must be active in the protection of water resources.

Using a map of the United States, locate large bodies of water which are common to several communities, states, or nations. Discuss the importance of cooperation among all groups involved.

Montana plays an important role in the management of water resources.

Have a class committee write to various state agencies asking for materials concerning water resources and their management.

Polluted water is water which contains harmful substances in quantities which endanger health and limit its use.

Collect and display pictures and articles about polluted water.

Water pollution has many causes, most of which are the results of man's carelessness and abuse.

Have a class committee find out how sewage is treated in the community. Find the answers to such questions as:

—What is done with the heavy sewage?

—Where is the liquid sewage released after treatment?

Water pollution affects man and his environment in many ways. It affects health, natural beauty, recreation, and property values.

Have pupils create stories, skits, poems, songs, which tell of a child or an animal whose environmental water became polluted.

Take a field trip to an area blighted by water pollution.

Discuss:

—What is the cause of the pollution?

—What is being done to restore the area?

Have children draw a "before" and "after" pollution picture.

This section is best suited to 6th grade level due to the technical aspects of the information.

Air is composed of gases — mainly nitrogen, oxygen, and carbon dioxide. The composition of air determines its usefulness in maintaining plant and animal life.

To demonstrate that air is composed of more than one gas, remove oxygen from a sample of air and show that about four-fifths of the air still remains.

Process: Wash a wad of steel wool in detergent to remove the oil which was put on it to prevent rusting. Push this wad of wet steel wool into the bottom of a test tube. Invert the test tube in a shallow pan of water and have the children observe it occasionally for the next few days. As the oxygen begins to combine with the steel wool to form rust, the water will rise in the test tube to take its place. After the water has risen about one-fifth of the way up the tube, no further change will occur, because the oxygen will have been exhausted, leaving only the other gases which are in the air.

There are two common causes of air pollution: burning, which releases solid particles and gases into the air, and other industrial processes which fill the atmosphere with a great variety of materials.

Obtain a map of the community. Discuss with the class the possible sources of air pollution in the community (industry, etc.). Show the location (in general) of the sources of air pollution on the map.

Trash and leaf burning by the individual or community create problems of air pollution.

Have a class committee determine if there are ordinances prohibiting the burning of trash and/or leaves. If there are such ordinances, discuss with the class how they are being enforced.

Perform the following experiment:

Process:

—Obtain a candle, matches, an alcohol lamp, three clean test tubes of the same size, a test tube holder, and a test tube rack.

—Hold test tube 1 in the flame of a candle for 10 seconds. Place it in the test tube rack.

—Hold test tube 2 in the flame of a match for 10 seconds. Place in rack.

—Hold test tube 3 in the flame of the alcohol burner for 10 seconds. Place in rack.

—When the test tubes have cooled, examine them for soot deposit.

—Which produced the most soot?

. the flame of the candle

. the flame of the match

. the flame of an alcohol burner

The air may become polluted by natural events such as dust storms, volcanic eruptions, and forest fires.

Have class committees research and report on forest fires or volcanic eruptions. Consider their effects on the air. Pictures of such events may be collected for a bulletin board display.

Conditions that produce changes in the speed and direction of the wind indirectly affect the dispersal of pollutants in the air.

Discuss such questions as:

—How can the temperature of air affect the dispersal of pollutants?

—How does the weather condition known as an "inversion" occur?

—How does an inversion condition affect air pollution?

—What affect does precipitation have on pollution?

—How does the topography of the land affect air pollution?

Perform the following experiment to demonstrate an "inversion."

—Take a tall, narrow container, such as an olive jar, and fill it half full of motor oil. Introduce water through a tube on the surface of the oil. If this is done carefully, it may be possible to fill the cylinder to the top. Normally the water would be below the motor oil. In a like manner, warm air should be found nearer the ground than cold air. However, under certain conditions, there is an "inversion" of normal affairs and the cold air, like the water, is found on top.

Air pollutants create harmful effects to people's health.

Perform the following experiment to produce smog:

—Smog can be produced by the condensation of water vapor (or other vapors) on solid particles like smoke.

—Insert a lighted match in a gallon jug to make a small amount of smoke. Blow, with your mouth pressing firmly on the mouth of the jug, and release the compressed air quickly. A smog should form in the jug. Try this blowing activity without the smoke from the match.

Many plants are extremely sensitive to the toxic effect of some common air contaminants and may be eaten by animals with fatal results.

You can observe the effect of smog, dust, and exhaust gases on plants.

—Compare the condition of trees, shrubs, and other plants growing near a heavily traveled road with similar trees, shrubs, and plants that are growing some distance from the road.

—With a hand lens, examine individual leaves from plants in both locations.

Perform the following experiment: to show that pollutants may clog the stomata or openings on leaves of green plants and interfere with the passage of water vapor and other gases in and out of the leaf.

—Select two or three leaves of a healthy geranium plant. Coat them with petroleum jelly making sure that all surfaces are covered. Observe the condition of these leaves on the same plant over a period of time.

—An interesting variation of this experiment would involve coating one leaf on the bottom surface only, one leaf on the top surface only, and one leaf on both sides. What conclusions can be drawn from this experiment?

Dustfall measurement determines the amount of soot, dust, and other particles that settle out of the air.

Perform the following experiment to find out which has more dustfall — the air in the classroom or the air outside of the school:

Equipment needed: 2 glass plates (same size), petroleum jelly, microscope, or hand lens.

Process:

—Evenly cover one side of each glass plate with a layer of petroleum jelly.

—Put one of the glass plates on an outside window ledge and the other glass plate in the room where it will not be disturbed.

—After one day's exposure, examine the deposit of dustfall on each glass plate with a microscope or hand lens. Note the size, color, and shape of the particles.

—Compare the amount of dustfall deposited on each of the plates.

Discuss:

Which has more dustfall, the air in the classroom or the air outside?

Can this difference be explained?

Discuss with the class:

—What action can students take regarding air pollution?

Proper food handling produces safe, attractive, and nutritious food. Food handling means all the things that happen to food from the time it is grown until the time it is eaten.

Have class committee research a specific food from its source to the table. Draw a mural illustrating this process.

Food becomes contaminated through improper handling.

Ask children to describe and draw conclusions on the following experiment: Keep some milk unrefrigerated in the room and an equal amount under refrigeration. After a few days compare the differences between the milk samples.

—What happened?

—Why?

—What is the cause?

A chart can be kept on the length of time that passes before the refrigerated sample of milk sours.

Milk is pasteurized to destroy the micro-organisms that cause disease.

A skit can be written and acted out of the discovery of pasteurization.

—Was this an example of a carefully planned scientific experiment?

—What was the motivation? Was it critical? Explain.

—Does it still apply today?

—Was it a group effort or primarily the work of an individual?

Laws, regulated by various governmental agencies, require that food stores and food handlers maintain high sanitary standards to avoid transmission of disease.

Have the class committee invite local food business operator to talk to the class about sanitation regulations in the operation of his business.

Visit the school cafeteria or invite the dietician to speak to the class concerning the procedure required to safeguard food production and service, as well as nutritional value.

Each person must accept the responsibility of safeguarding his food against contamination.

Have children clip pictures and articles pertaining to food handling. Discuss these pictures and articles with the class. Ask pupils to:

—Itemize foods leftover at home for 2 days.

—Tell how leftovers were handled.

—How can this be improved?

Effective treatment of human wastes is important to the maintenance of health.

Have class committee find out what the local facilities and methods are for the collection and disposal of sewage and refuse.

Arrange a field trip to a sewage treatment plant. Ask the tour guide to explain the treatment process used at the plant.

Refuse is defined as the trash, garbage, and other materials which no longer have a use.

Discuss the three major classes of refuse (garbage, combustible rubbish, non combustible rubbish). Discuss questions such as:

—What does combustible mean?

—How can you get rid of things that won't burn?

—What problems does burning cause?

—What are some advantages and disadvantages of "no deposit" bottles?

There are many methods of treating refuse such as:

— burning
— burying
— compaction
— decomposition.

Invite the school maintenance man to discuss with the class how school refuse is collected and disposed of and what part the students can play.

Have class committees research and report to class:

—how residential community refuse is collected and disposed of

—how commercial community (shopping centers, office building, etc.) refuse is collected and disposed of

Inadequate disposal of refuse produces unhealthy, unsanitary, and unsightly environmental conditions.

Have pupils determine the amount of trash disposed of by their family for a day (number of sacks, etc.). How much does the entire class represent?

Have children make a collage of pictures of areas blighted by dumps, uncollected refuse, etc.

Form a class cleanup campaign to clean up the school. This committee could work in conjunction with committees from other classes.

A healthful home environment provides family members with a safe, disease-free place to live.

Research and report on the three components of home environment (food, clothing, shelter) in a culture different from yours. Illustrate the report with drawings or pictures from magazines.

Each family member shares the responsibility of maintaining a safe and healthy home environment.

Have class act out a skit showing:

—the role of a father, a mother, and a child

—how each role contributes to a healthy home environment.

A healthful community is one that is a safe, desirable place in which to live and work.

Have pupils create a story or skit about the day/week a service broke down (garbage disposal, electricity, public transportation). Indicate how these problems affected the individual and the community.

Communities need many health services to meet the needs of their members. These services are the responsibility of individuals, voluntary service groups, and governmental agencies at the Federal, State, and local levels.

Have children draw a mural or collect pictures for a collage depicting services that are paid for through taxes or fees (garbage, water, road maintenance, etc.).

Teaching Aids

Environment is the surroundings, conditions and influences which may affect physical development or growth of character.

Man needs to understand his natural environment in relation to: weather factors (sun, rain, snow, wind), auditory factors (industrial, occupational, residential), health factors (vision, odor, disease).

Among the ways man can improve his health are: disease control, proper housing, safe water supplies, use of safely preserved and prepared food.

Children need to realize that in search for solutions to some environmental problems we have created hazardous conditions, such as the development of DDT.

Communicable disease declined when man's knowledge increased influencing him to remove refuse, use safe water, refrigerate his food, and immunize against disease.

Four microorganisms that cause disease are protozoa, bacteria, fungi and virus. Some diseases caused by:

—protozoa: malaria, amebic dysentery, sleeping sickness

—bacteria: diphtheria, tuberculosis, typhoid, tetanus, anthrax

—fungi: ringworm, athlete's foot

—virus: polio, measles, mumps, smallpox

Immunity is the ability of the body to resist the invasion of germs and prevent the development of a disease. Acquired immunity is temporary or permanent, depending on how it is acquired and the specific disease against which it protects.

Active immunity is brought about in two ways. One way is by recovering from the disease process itself. A second way is by injecting the germ itself (in a dead or weakened state) or by injecting the weakened waste product of the germ. Injections of a killed or live germ are known as vaccines. Injection of the waste product itself is called a toxide.

Water is needed by living things in order for them to carry on the complex activities of life. Most tissues of organisms are made of 70 to 95 percent water.

Nationwide, about 80 percent of the water supply comes from surface sources and 20 percent from ground water.

The amount of water we use depends on: the amount of water available the number of modern conveniences we own and how much we use them . how many people use the supply.

Some home uses of water and the average amounts used are: shower (25 to 30 gallons per use) . bath tub (12 to 30 gallons per use) . washing machine (25 to 50 gallons per load . cooking and drinking (5 gallons per day) . dishwasher (9½ to 15½ gallons per load).

To meet all the needs of an average community, 140 gallons of water must be supplied every day for every person living in the community. Of the 140 gallons, 50 gallons are used in the home. An additional 50 gallons are used by industry. Water needed for firefighting, street sprinkling, swimming pools, and public fountains accounts for another 10 gallons. Businesses use 20 gallons for the operation of stores and offices. Ten gallons are lost through leaks and breaks in underground pipes.

Pollutants may be organic or inorganic. Examples of undesirable pollutants are:

—domestic wastes: human wastes . detergents . household greases.

—industrial and commercial wastes: grit chemicals . alkalies . dyes . lubricants . metals.

—agricultural wastes: silt . nitrates . fertilizers . pesticides . insecticides . herbicides . animal wastes.

Some of the factors contributing to water pollution: growth in population, industry, cities . increased demand for water due to the growth in population, industry , and cities . rapid technological expansion in the use of chemicals . inadequate and outdated treatment facilities . man's attitude.

Water affected by pollution may be identified by these visible characteristics: scum on top . odor . floating and submerged trash . gas bubbles . types of life in bottom (benthos).

Water borne diseases include: hepatitis . typhoid fever . dysentery . cholera . gastroenteritis.

Other consequences of water pollution are: diminishes sources of water supply . increases cost of necessary treatment of public water supply . discourages industrial expansion (which may result in lower employment, underdeveloped towns, and lowered state revenues) . destroys water recreation (boating, fishing, swimming) . lowers water frontage and property values . robs areas of their natural beauty . destroys wildlife (fish, plant life, birds and water animals).

Air pollutants may be classified into three categories:

—gases: sulfur dioxide . hydrogen sulfide . nitrogen dioxide . and many others.

—liquids and aerosols: finely divided particles and fumes of many substances.

—solids: dust . metal particles . ashes . etc.

When small particles are suspended in a gaseous medium such as air, the mixture that results is called an aerosol.

Weather factors that influence the wind are temperature, barometric pressure, amount of sunlight, and precipitation. The topography of the region, whether it is level, hilly or mountainous, also affects air movement.

Precipitation in the form of rain or snow has a cleansing effect on polluted air. Suspended particles of dust and other materials are removed from the air when they collide with raindrops or snowflakes and are carried to the ground.

Many gaseous pollutants dissolve in rain and are removed from the air.

Some contaminants are actually toxic, e.g., fluorides, hydrogen sulfides, and arsenic. Most commonly, the results are respiratory: irritation of the throat and lungs, coughing, lesions of the respiratory tract, and in severe cases, death from respiratory failure.

Some pollutants such as pollen show primarily an allergenic effect. The radioactive pollutants, and a few other types may cause cancer. In the case of ionizing radiation, mutations may be found.

An important pollutant that causes damage to vegetation is sulfur dioxide. Sulfur dioxide and oxygen combine with water vapor in the air to form sulfuric air mist. In addition to coniferous and hardwood trees, other plants that are sensitive to sulfur dioxide include leafy vegetable crops, alfalfa, barley, wheat, oats, and trees such as aspen, poplar, and birch.

Gaseous pollutants that accumulate on the leaves of plants interfere with photosynthesis, retard growth, and cause destructive changes in the plant tissue.

Because of the accumulative nature of these poisons, the animals feeding on these plants also are poisoned. The animals develop a disease that results in decay of the teeth and gums, loss of weight, bone deformities, and eventually death.

One device for the control of automotive pollution is a canister containing a special chemical. When placed in the car's exhaust system, the special chemical decomposes most of the pollutants.

An afterburner consists of a spark plug and an air supply device which are placed in the exhaust system. A spark from the spark plug helps to destroy unburned fuel and other contaminants.

Food handling includes the following processes:

—farming (planting - harvesting)

—processing: freezing . drying . canning. freeze-drying . smoking . pickling.

—packaging

—storage

—distribution

—preparation for eating.

Microorganisms need warmth, food, water to live. They are injured or destroyed by sunlight, drying, extremes of temperature, and a variety of chemicals.

Examples of rapidly perishable foods are: milk and milk products, salads and food combinations, food from the meat group (meat, fish, poultry, eggs), pastries, custards, pies.

Two major methods of pasteurization are:

—holding method: milk is heated and held at 145° F. for 30 minutes and rapidly cooled at 45° F.

—flash method: milk is heated to 161° F. for 15 seconds and then rapidly cooled.

Sanitary codes require routine inspection of establishments where food is: sold, manufactured, prepared, processed, stored, served.

Examples of governmental agencies:

—Food and Drug Administration: enforces pure food and drug law . implements the law for products other than meat and poultry . conducts extensive animal tests with additives before these can be released for human use.

—Public Health Service: investigates epidemics . teaches home sanitation technique . supervises shellfish growing, shopping, storing . prints informative publications.

—U.S. Department of Agriculture: inspects meat through the Bureau of Animal Industry.

—State Health Department: investigates epidemics . teaches home sanitation techniques . prints information publications . develops standards and trains sanitarians . makes inspections and evaluates local programs.

—state departments of agriculture.

—county health departments and local sanitarians: cooperate with state agencies . speak to groups . inspect . train operators and food handlers.

When handling food at home: keep hands clean . minimize hand-food contact . use clean utensils and dishes . refrigerate cold foods after purchasing . remove leftovers (food cooked and uneaten) from table promptly, cover to exclude insects and rodents, refrigerate without cooling.

Guidelines for eating away from home: choose restaurants carefully . report to health department restaurants which are not clean . report to health department any illness suspected to have come from contaminated food.

Wastes are classified as:

—sewage (liquified wastes discharged into community sewers, septic systems or cess pools)

—refuse (solid wastes not carried by sewers).

Treatment of wastes involves process of: collection . transportation . storage . discharge . decomposition.

Sewage can be a cause of a dangerous form of water contamination by micro-organisms contained in human wastes resulting in serious disease such as: cholera . dysentery . hepatitis . parasitic infections . typhoid fever.

Refuse treatment procedures:

—storage in receptacles

—collection: public works department . private company licensed by state to collect refuse

—disposal methods: sanitary landfill (a. refuse compacted; b. covered with earth daily; c. efficient, inexpensive when land is available . incineration . open dumping (a. unsanitary; b. source of pollution, odor, disease) . compaction (a. for reusable material; b. in experimental stage) . compositing (organic refuse converted to humus-like material) . recycling (cans, glass bottles, etc.).

Problems of inadequate refuse disposal arise because: increases in population result in increased amounts of waste . industry has created almost indestructible packaging materials . historic methods are ineffective (space for dumping is becoming unavailable; incineration methods pollute the air).

Community health services include: garbage removal . protection of food, water, air . utilities (gas and oil, water, electricity, telephone) . medical (hospital and clinics) . transportation (mass transportation, road maintenance) . social services (welfare, rehabilitation) . recreation.

Individuals assume responsibility by: paying taxes and giving donations . caring for private and public property . joining community groups.

BEHAVIORAL OBJECTIVES

Seventh-Ninth Grade Levels

The development of positive attitudes toward one's personal relationship to and responsibility for the maintenance and improvement of a healthful environment should be the major goal of this unit. On its completion students:

—Should understand the nature of public health practice;

—Should become familiar with the kinds of public health problems which exist and why they have become major problems;

—Should understand why some health problems are personal in nature and others are the concern of the whole community; and

—Should learn how to become involved in ways of making the future a more healthful time to live.

CONCEPTS

Many basic principles of public health practice today have evolved from early experiences of dealing with public health problems.

Modern public health practices include the prevention of disease, prolonging life, and promoting health and efficiency.

The fields of public health concern and practice range from the individual to large community groups.

The goal of public health practice is for each person: absence of disease and disability, abundant personal energy, ability to work within his or her capability, and a happy productive life.

Man has learned to deal more effectively with threats to his health, but he has also created new threats as air, water, and other pollution.

Water is one of the most important commodities man consumes.

Public water supplies are continually monitored by professional personnel.

Domestic and industrial are major sources of water pollution.

Proper treatment of sewage in a community will prevent disease, maintain health and prevent environmental pollution.

Sewage treatment is directed toward solid matter, liquids, and bacteria.

Air pollution is the presence of substances in concentrations sufficient to interfere with the comfort, safety, or health of living things.

SUGGESTED ACTIVITIES

Identify and compare public health practices of the past with those of today.

Have students identify the purposes of organized public health practices.

—How do such efforts improve individual effectiveness?

—What areas of health practice are most urgent in today's society?

—How can each person assist the public health worker to improve man's quality of life.

Invite a county commissioner, public health nurse, sanitarian, or full- or part-time health officer to discuss kinds of programs in operation now and those planned for the future.

Discuss how a person's occupation can affect his health. What occupations might be hazardous to health?

Have a committee gather pertinent data related to morbidity and mortality for the past 20 years in their county and the state and report to the class.

Have students keep a record of the water each uses for a three or four day period. Invite a speaker from a local industry to describe its use of water.

Visit the local water filtration plant, and ask the plant manager to explain the process.

Have students discuss what cities and towns and large industries and agriculture are doing to prevent polluting water supplies.

Visit a sewage treatment plant in your community.

—Describe the stages of treatment.

—What are the major problems in treatment?

—Is it a primary, secondary or tertiary treatment plant; explain.

—How does local industry prevent water pollution from its waste?

Develop a chart or diagram of the typical sewage treatment process and explain.

Identify the factors which cause air pollution.

Population increase, which results in increase in human activities, is the chief cause of air pollution — "to live is to pollute."

Make lists of air pollution sources: in the home, neighborhood, community, county, and state. List industrial sources of pollution in community and state.

Polluted air may have immediate as well as long-range effects on man's health.

Have students identify the specific health conditions which may result from air pollution.

Air pollution causes severe economic losses in terms of property damage.

Develop bulletin board display with regard to air pollution locally and include: Effects on health; Sources of pollution; Damage to property; Economic loss.

The use of pesticides has become widespread in agriculture and animal husbandry. Intelligent use ensures an adequate supply of safe-to-eat, nutritious food for man and animal.

Have students list common pesticides and their uses. Invite a county agricultural agent to come and talk about pesticides and their use.

Noise is any disturbing sound that may interfere with work, comfort, or rest. It may be both physically and psychologically harmful, especially when exposure is continuous.

Have students identify and describe occasions when sounds have been uncomfortable, unpleasant, or painful.

—How does noise affect health?

—How does noise affect the ear and hearing?

—What effect does continuous noise have on emotional and psychological behavior of people?

—How does noise affect the fatigue level of people?

Public health laws are necessary for good community health.

Assign individual or committee investigation and reports on: laws regulating food distribution and production; regulations and procedures for control of communicable diseases such as tuberculosis, meningitis, hepatitis; regulations concerning radiation; benefits, hazards and regulations in use of pesticides.

Federal, state and local health agencies interact to create a favorable community environment.

Develop a bulletin board display showing U.S. Public Health Service, state and local, and show interrelationships. Indicate other official, voluntary and professional agencies such as the American Cancer Society, American Medical Association, U.S. Dept. of Agriculture.

Discuss the relationship of the above agencies to the student. Indicate how the students can help these agencies.

Discuss the functions of the following in protecting the consumer: Local health department; state health department; federal drug administration; Better Business Bureau; Bureau of Animal Industry; Federal Trade Commission.

Teaching Aids

Public health defined: Public health is the science and art of preventing disease, prolonging life, promoting health and efficiency through organized community effort for:

—the sanitation of the environment;

—the education of the individual in personal hygiene and good health practices;

—the organization of medical and nursing services for the early diagnosis and preventive treatment of disease;

—the development of social machinery to ensure everyone a standard of living adequate for the maintenance of health, and the organization of these benefits so every citizen can realize his birthright of health and longevity.

Range of water use per city dweller per day is 130-175 gallons. The specific breakdown is as follows:

50 gallons: home use	10 gallons: public needs
50 gallons: industry	20 gallons: commerce
	10 gallons: leaks, etc.

Sanitary analysis of water is intended to furnish evidence of wholesomeness of water. Frequency of analysis is most important. Parts of a sanitary water analysis are: (1) physical tests, (2) chemical tests, (3) microscopic tests, (4) radiological tests.

How water pollution affects each person. (1) Threat to health. Polluted water may be contaminated with viruses and bacteria that transmit scores of diseases. (2) Increased costs. It costs each person more for purification. (3) It lowers property values, making water frontage a liability instead of an asset to homeowners. (4) Discourages industrial expansion. Industry needs clean water to operate. (5) Discourages recreational areas. Boating, swimming, and fishing are clean-water sports. With our population increasing in numbers each year, we need more, not fewer, areas for recreation. (6) Kills fish and wildlife. Many fish are killed by pollution in the state of Montana each year. (7) Robs us of beauty. The stench and ugliness of pollution is waste, neglect, and abuse of our heritage.

Sewage is the liquid wastes from household and commercial sources. Sewage must be "oxidized." The quantity of oxygen required in a given length of time to satisfy the chemical and biological oxidation demands of the sewage is known as B.O.D. (Biological Oxygen Demand).

Air pollution is not only a hazard to the health of people but also contributes to millions of dollars of cost in damage to property, wildlife, and plants.

Sources of air pollution related to man's activities are (1) home — heating, cooking, waste incineration and fireplaces; (2) transportation — motor vehicles, ships, railroads, and airplanes; (3) manufacturing and processing — gases, solids, and odors; (4) radioactive emanations.

The effects of ordinary concentrations of air pollutants are subtle, but real. While air pollution never appears as a cause of death on a death certificate, medical research implicates it. Polluted air does its damage slowly and in small doses, so that its effects are difficult to pinpoint. Statistics show a steady, steep increase in the incidence of such respiratory diseases as: asthma, bronchitis, and emphysema. Large cities with the dirtiest air have the greatest incidence of these diseases.

Cautions for use of pesticides in the home. (1) Consider all household pesticides as poison. (2) Do not stockpile pesticides. (3) Read labels and follow instructions. (4) Be conservative in use. (5) When spraying, remove or protect all food, and remove pets from the area. (6) Wear a mask to prevent inhaling mist. (7) Do not spray near an open flame. (8) Do not smoke while using spray. (9) Bathe exposed parts of body after spraying. (10) Use common sense when spraying.

Prevention and control of noise pollution include: (1) Survey of noise; (2) Improved engineering methods; (3) Development and use of personal protective equipment; (4) Proper selection of personnel; and (5) Careful city planning.

BEHAVIORAL OBJECTIVES

Tenth-Twelfth Grades Levels

Students in grades 10, 11, and 12:

—Should develop an understanding of the attitude and actions of governments relative to our major environmental and public health problems.

—Should understand the complexities involved in the improvement of the environment and in the control of sanitary practices.

—Should become aware of and appreciate the complex health problems related to community health practices.

—Should explore and develop solutions to the environmental and public health problems.

—Should become involved in improving the environment.

—Should develop an understanding and appreciation of the necessity for each individual to conserve and utilize our resources (including human) most effectively.

CONCEPTS

Medical science is actively engaged in research linking air and water pollution to specific diseases.

Conservation and control of water and air affect our world community.

Science and industry are working together to solve the pollution problem.

Communities need cooperative planning to enhance health.

SUGGESTED ACTIVITIES

Review literature on medical research in this area. (Science has established a link between air pollution and bronchial asthma, anthracosis, respiratory diseases, and heart diseases.)

Have students research work of World Health Organization (WHO) in water pollution control.

Discuss the following in relation to advance of civilization in the past and in the future:

—availability of water (human use, transportation, medical, technical, scientific and industrial uses)

—conversion of salt water to fresh water and purification of water

—conservation (recycling, restricting use, efficient use)

Discuss the role of the State Department of Health and Environmental Sciences, Fish and Game Department, and private organizations play in conservation.

Have small groups of students research and discuss the following: (1) daily community water consumption and possible conservation, e.g., summer drought seasons. (2) economic aspects of conservation as it relates to the tax dollar. (3) influence of water upon community economics (recreation, tourism, business opportunities). (4) economic aspects of water-borne diseases in a community.

Discuss alternate disposal methods being studied by science and industry, e.g., landfilling, compositing, wet oxidation, pyrolization and anerobic digestion.

Discuss automobile manufacturers' measures to control air pollution and the use of precipitators in controlling content matter in smokestack emission.

Select and discuss a timely and pertinent regional health problem such as:

—need for hospital or mental health facility.

—air or water pollution.

—rehabilitation center for alcoholics.

—food sanitation.

—noise abatement.

—need for doctors and nurses to meet population growth.

—community involvement in drug abuse.

Organize class to research a selected health problem from the above list. Discuss the findings in large group sessions. In addition:

—review state and local regulations and laws pertaining to the problem.

—determine current trends and research on the selected regional problem.

—interview city or county planning commissions to determine how the individual citizen can have a voice in remedying community or county health problems.

—interview men in industry to determine current efforts being made to alleviate the selected problem.

The quality of life in psychological terms is partly determined by the quality of the immediate physical environment.

Have students research and discuss the characteristics of a slum and ghetto environment. Include physical facilities and overcrowding, and the psychological and physical effects.

At work, man is often subjected to a hostile environment.

Discuss:

—ways man at work can limit or control environmental hazards in occupations.

—the efforts being made by industry to protect men at work from occupational diseases or hazards.

Visit various local, industrial, manufacturing, or processing establishments and see the various devices and aids being used to reduce environment hazards which may result in injury or disease.

Poor health and lack of knowledge interlock.

Discuss:

—Can there be such a thing as a healthy poor person? Have students research the statistics dealing with poverty and: crime; poor housing — unsanitary conditions; mental illness; underemployment; educational levels; doctor/patient ratios; diets; drug addiction; number of people per square mile in slum areas as opposed to affluent areas.

Solutions to the chronic and degenerative diseases lie in attention being given by the individual, the health sciences, and social action.

Have a committee of students identify the key problems regarding chronic diseases.

Have a second committee formulate possible solutions to these problems.

Have a third committee draw all ideas together and develop an ideal public health program to deal with diagnosis, prevention, and treatment of degenerative disease and other problems of aging.

Have a debate on compulsory versus voluntary health protection.

A variety of complex unsolved health problems still exist in medicine and public health.

What steps are being taken to solve the problem of:

—old age
- . psychological
- . sociological
- . economical
- . occupational

—addiction: drugs, tobacco, alcohol

—accidents

—genetic defects

—viral infection

—cancer

What are some of the reasons why the U.S. does not lead in life expectancy and in the lowest rate of infant death?

Total health transcends local, state, national, international, and political boundaries.

Have students investigate activities of the following agencies of the United Nations and report:

—Food and Agricultural Organization

—United Nations Children's Emergency Fund

Discuss health regulations of foreign visitors and re-entry of citizens to the United States.

Discuss problems of administering these regulations. Compare the health entrance requirements of the United States with those of other countries.

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DISEASE PREVENTION AND CONTROL

Rationale for Unit: Throughout history, records have depicted man's unceasing attempt to better understand diseases and how they affect man. Concern with specific diseases has changed from decade to decade with the discovery of new "wonder drugs" and resultant cures, but present-day health scientists are continuing their efforts to discover new levels of knowledge which will allow us to prevent and/or control diseases that influence man's health.

Children in the primary grades need to understand the basic principles of disease prevention and control for various reasons. Most school absences will result from communicable diseases and therefore represent real health problems specific to the elementary grade child. The teacher should utilize the educationally timely benefits by relating to the national interests which will surface at this age. At this age also, the mental, emotional and social development of the child dictates preoccupation with self and he needs to be able to understand the relationships between his personal health and the health of his group. The early years are crucial to the development of positive health practices and attitudes that will help him and the group with whom he lives be better protected from communicable and non-communicable diseases.

In a progressive health curriculum, teachers in junior high should reinforce concepts and positive behaviors which have been taught in the elementary grades. Considerable emphasis should be placed on the fact that present knowledge of disease prevention has an important impact upon the incidence and prevalence of communicable and non-communicable diseases. Students should be aware of the impact of newer health problems on disease rates.

High school students should deal with disease prevention

and control concepts which are specifically related to their particular health needs. The area of venereal disease deserves special attention and for this reason, a special section has been included in this guide dealing specifically with venereal disease. The preventive aspects of other diseases that pose problems to teen-agers and adults should also be included in the high school health curriculum.

CONCEPTS

Kindergarten-Third Grade Levels

Illness is often caused by "germs" that are too small to be seen but are present almost everywhere.

Man is the most frequent reservoir (or source) on which germs depend for survival.

Germs must first be transmitted to a host, such as man, before illness can occur.

Germs travel in many ways but must always have a vehicle for movement.

Some diseases are spread to man via the bites of certain insects.

Air contains many germs suspended on dust particles or droplets of water.

Illness can occur only after germs enter the body and find favorable conditions for living and growing.

Infections can spread to the ears from the nose and throat by sniffing and by incorrectly blowing the nose.

We can do many things to avoid infectious diseases.

Washing hands before eating, after play, and after using the toilet helps to keep one healthier. Germs may spread from one person to another by sharing drinking glasses, toothbrushes, combs, towels, washcloths, etc. Lips and mouth should not touch the fountain nozzle because germs may be harbored on these surfaces.

SUGGESTED LEARNING ACTIVITIES

Touch various articles in the room while wearing white gloves. Observe how quickly the gloves become soiled to demonstrate the necessity for washing hands and keeping them away from the face and mouth.

Inoculate culture media with dirty objects (such as dirty fingers) **and** with "clean" objects — that is, those that are visibly clean. Incubate and observe bacterial growth. The science teacher may help to prepare the nutrient.

Have children suggest the specific supplies and equipment that are shared in the classroom. Emphasize that these shared items can be contaminated easily and may serve as a vehicle for infection.

Use a projector to project a beam of light in a darkened room. Have pupils tell you what they see. Most will note the countless dust particles that would otherwise not be visible.

Discuss how the school custodian helps to keep dust level low in classrooms.

Demonstrate the correct ways to blow the nose gently with both nostrils open.

Demonstrate and practice hand washing before lunch, after play, and after toileting.

Poster: "To fight germs be sure to wash your hands." National Tuberculosis Association.

Have children clean out their desks and correctly dispose of the waste. Hands should be washed following this activity.

Demonstrate and practice the proper use of drinking fountains.

By covering the mouth when coughing or sneezing, the spread of disease via the air route may be prevented.

Paper tissues should be thrown into the waste basket after using once. Shaking or waving a soiled handkerchief may scatter germs in the air.

By having "shots" one can prevent certain diseases.

Children and teachers should stay home from school when they are ill, so that they may get well faster and avoid passing germs to others in school.

The heart is the key part of the circulatory system.

The circulatory system is similar to a transportation system.

Visit the school lunch room and observe sanitary measures followed in food preparation and food storage.

Correlate with art. Have children make faces from paper plates and construction paper. Staple hand and paper tissue to mouth and nose of face. Caption: "Cover your coughs and sneezes."

Discuss the immunization record of the class with the school nurse.

The school nurse may be used as a resource person for pamphlet materials from insurance companies and health departments. These may be helpful in carrying out parent education.

Discuss how being in school spreads germs. Why is it better, when ill, to stay home? — In bed? — follow the directions of the doctor and parents?

Discuss how the heart works or invite the school nurse or doctor to do so.

Have the students listen to a classmate's heart with a stethoscope; discuss why a doctor uses such an instrument.

Demonstrate the functions of the blood and complete arterial structure.

Compare the circulatory system to delivery trucks bringing food to a house and sanitation trucks taking wastes away.

Discuss how food, rest and fatigue affect the circulatory system.

Fourth-Sixth Grade Levels

Disease takes many forms and may affect any part of the body.

A disease is any unhealthy condition of a part or all of the body.

Discuss the following questions:

a) What is a disease?

b) What are man's accomplishments in combatting disease in the past 50 years?

c) What were some early ideas about the nature of disease? What caused it?

Have pupils go to the library and look up "health heroes."

Appoint two committees of 4 pupils each.

a) Have one committee develop a bibliography with help from the librarian, on each of the areas of disease that is being studied. (These can become the basis for a resource center and independent study for the pupil.)

b) Have the second committee consult with the school health educator, school nurse and dental hygiene teacher to determine the kinds of learning aids that are available in this area. These also can become part of the learning center.

All communicable diseases are caused by infectious agents.

Communicable diseases are of many different kinds, but they are all capable of being transmitted from person to person.

Review the three elements necessary for the occurrence of an infectious disease.

Develop a comparison table with the class, using the following headings:

a) name of disease

b) infecting agent

c) kind of immunity possible

d) general nature of the disease

e) remarks

Have pupils list two diseases for each causative agent and two diseases which are not communicable.

Many diseases (e.g., degenerative diseases) which attack man cannot be transmitted from one person to another.

Have pupils write a short essay on "Why some diseases cannot be passed on to other people."

There are many different causes of diseases.

Questions:

In what ways are noncommunicable diseases different from communicable?

Can some noncommunicable diseases be "caught" from someone who has them?

What are some examples of noncommunicable diseases?

How does the control of noncommunicable diseases differ from the communicable? How is it similar?

Have a class committee:

Obtain from the library all the books available on disease and its control.

Obtain from the school health coordinator posters or other visual charts.

Obtain from the audio-visual director slides, filmstrips and movies.

The above can be made into a display. Invite other pupils to see it.

Age, sex and heredity sometimes influence an individual's susceptibility to disease.

Have a committee of pupils write, direct, produce and act in a play based on some great event in man's attempts to conquer disease.

Visit the public health department or state laboratory. Learn how this department functions. Discuss:

Some disease control measures are very specific, (immunization) while others may be very general (sanitation).

a) Why are there specific clinics for the control of disease?

b) How does the department know when to have immunization clinics?

The body has a natural resistance to disease which may be genetically determined.

c) How does the department cooperate with the family physician in disease control and prevention?

Immunization is the process through which a person develops protection against a specific disease.

d) What is the function of the state laboratory?

Since much of the prevention and control of disease is dependent upon the individual's cooperation, it is important that each person be adequately informed about disease.

Ask the class to illustrate, list, or explain methods used to educate people about diseases. Compare the advantages and disadvantages of each.

Pupils may survey such areas as sports announcements on T.V. or radio, school's health education program, public forums, etc.

Invite to class an executive secretary from one of the voluntary health agencies to discuss how their agency educates people about disease. Examples: American Cancer Society, Montana Division; Montana Lung Association; Montana Heart Association; or the National Foundation.

Treatment for disease may vary from simple bed rest to the use of a variety of modern drugs, surgery and radiation.

The discovery of many drugs has enabled man to control many diseases which a few years ago would have incapacitated or killed him.

Invite a physician to class to discuss how new drugs have changed the treatment of disease.

Begin a "museum of medical oddities." Include in the collection: old medicine bottles, medical books, instruments, pictures from the past, etc.

Have pupils report to the class on the discovery and use of one of the antibiotic drugs.

Discuss:

a) How are they alike?
b) How do they differ?
c) What are their limitations?
d) Who can buy them? Why?

Rehabilitation is an essential part of treatment, and includes those measures that help an individual to return to his family and community as rapidly, and as healthy as possible.

A rehabilitation counselor may be available to discuss the many ways that individuals may be rehabilitated.

Programs of disease prevention and control are dependent upon individuals being informed of the nature of disease.

Make a wall-size chart of the major causes of death 50 years ago and superimpose those of today. What kinds of changes have occurred? Why?

Cancer is a disease involving abnormal cell growth.

Show students cancerous plant growths such as galls and burls. Explain that animal cells can grow in this manner.

Discuss the effects of a weed invasion in a flower bed and relate this to abnormal cells invading normal cells.

The increase of cancer presents a major health problem of concern to all persons.

Investigate cancer statistics; types, detection and cure.

Discuss self-examination and the importance of recognizing the danger signs.

Some of our health habits can increase the risk of abnormal cell growth.

Research and examine the evidence linking cigarette smoking and lung cancer. (Refer to Smoking Unit for additional information.)

Discuss the results of some of the cancer research done with animals.

Many types of cancer can be cured.

Discuss how good health habits can help in the early detection of cancer and other diseases through annual check-ups, specific examinations and tests, self-examination and communication with adults.

Discuss the work of the American Cancer Society in the fight against cancer. Invite a representative from the Montana Division.

The circulatory system is made up of a variety of structures.

Review transparencies or charts of heart and major blood vessels.

Diseases of the circulatory system are many.

Discuss or invite a doctor to discuss some of the more common heart and circulatory problems. Examine possible preventive measures.

The circulatory system is influenced by many factors.

Discuss the effect of cigarette smoking on the rate of heartbeat.

Discuss the effect of exercise on circulation.

Discuss how foods, fatigue and rest affect the circulatory system.

Many groups and agencies are engaged in research concerning the circulatory system.

Invite a representative of your local chapter of the American Heart Association to discuss the work being done to solve circulatory system problems.

Investigate the control, treatment, education and current research on cardiovascular problems.

Seventh-Ninth Grade Levels

Technological advances have influenced how man deals with the emerging health problem.

Have students investigate:

a) medical and other discoveries related to disease.

b) the incidence and nature of diseases in the nation.

Discoveries of the nature of diseases and how to control or prevent them have provided man with a greater opportunity to lead a more efficient and effective life. The microscope made possible the observation of bacteria and other microorganisms.

Develop a table to show the incidence of various diseases in the past 100 years and relate changes to technical advances.

Discuss the importance of the people who have contributed to our understanding of disease.

The potential for disease increases when man is unable to adapt to environmental conditions or is unable to change them.

Have students make a list of "communicable" diseases which are **not** necessarily "contagious."

a) How does this kind of knowledge affect disease control measures?

b) How do health sciences use the ecological principles in disease prevention? Disease control?

There are measures available which help man to control or prevent disease.

Students should investigate the important discoveries which have contributed to improving our health status.

Some diseases are caused by microorganisms such as:

- **bacteria**
- **viruses**
- **rickettsia**
- **fungi**
- **protozoa**

Have students identify causes of both communicable and noncommunicable diseases.

The spread of a communicable disease can be modified by breaking the "chain of infection."

A disturbance in the equilibrium between man and specific microorganisms is directly related to the incidence of some diseases.

Levels of immunization are dependent upon personal knowledge and recognition of the social importance of taking this preventive measure.

Epidemiology is the science which deals with all factors related to disease and health. It may include such things as the:
(1) incidence, cause, and effect of disease.
(2) trends and behavior of disease.
(3) disease prevention and control.

There is a complex inter-relationship among microorganisms, man's resistance to disease, social conditions, and the physical environment.

Disease is any condition of the body which interferes with the proper functioning of the individual. It may be either of a communicable or non-communicable nature.

Communicable diseases are transmitted by contact with infectious discharges from another person.

Have students relate the discoveries mentioned earlier to the actual control and prevention of disease. For example, ask some of the following questions:

a) How is the science of bacteriology, or virology, used to limit specific diseases, such as V.D.?

b) In what ways has bacteriology changed in recent years in order to have greater applicability to the study of the epidemiology of disease?

c) What have the major contributions of immunology to the prevention of disease been in the past 50 years?

Have students name and describe the variois methods by which disease can be prevented, controlled and treated.

What are some examples of the effects of disease on the individual, family, communities and nations?

What is the effect of disease on individual productiveness and, in the long run, on the economy of the nation?

Have students investigate each of the following and their relation to the epidemiological nature of disease.

a) artificial immunity
b) sanitary engineering
c) discovery of bacteria — relation to disease
d) development of certain chemicals related to disease treatment (penicillin, for example)
e) the development of:
   1. Epidemiology
   2. Ecology
   3. Immunology
   4. Bacteriology

If the class has had experience in small discussions or group dynamics, each of the above topics may be used for this kind of learning experience.

Have a group of students develop bar graphs that show the mortality rates from polio, measles, scarlet fever, and rheumatic fever over a period of several years. Have another group report on the dates that preventive measures were first made available for each of these diseases. Are these developments reflected in the graph?

What are examples of social conditions? Physical conditions?

Compare social and physical conditions throughout the world with relation to the incidence and kinds of disease in various countries.

Have students make a list of ways disease germs may be transmitted.

External objects used by infected persons act only incidentally as bearers of pathogenic organisms.

Some diseases are spread through direct and indirect contact between a well person and an infected human or animal.

Food, water, and soil may serve as vehicles for disease transmission if they are contaminated through the excretion of human wastes.

More disease-producing microorganisms enter and leave the body by way of the nose and throat than by any other channel.

The practice of desirable health behavior by the individual is vital to the prevention of communicable disease.

Have students present a report to the class on the housefly as a carrier of disease, identifying at least three diseases it can carry.

Congenital infections are transmitted from the mother to the baby before birth, so that the baby is born with the disease.

Have class discuss the ways congenital diseases can be prevented.

Our first line of defense against disease germs consists of the skin and mucous membranes.

Pamphlet: "Control of Communicable Diseases in Man," American Public Health Association.

The outer skin is a tough layer which, if not broken, forms an effective defense against disease germs.

A second line of defense is provided by the leukocytes, or white blood cells.

Describe a typical infection reaction, from its cause, the action of the leukocytes, pus formation (and its purpose) to tissue regeneration.

Immunization is an important protective measure against certain diseases.

Have the class investigate the nature of immunity.

Immunity is the ability of an individual to resist a specific disease.

What is the antigen-antibody reaction as it relates to immunity?

Immunity may be acquired naturally by having had a disease, or artificially as a result of medically-introduced substances (e.g., vaccines, toxoids).

Name several diseases in which an attack usually confers lasting immunity.

List some of the more important diseases which can be controlled by immunization.

Passive immunity is produced in an individual by injecting antibodies produced by another individual or animal.

Compare the diseases which can be controlled by artificial immunity today with those of 50 or 100 years ago.

Medical science is capable of treating and eradicating venereal diseases, yet these diseases now represent the most serious of the communicable disease problems in the United States.	What should you do if you suspect you have a venereal disease? What resources are available in your school and in the community? How would your decision affect you? Others in the community?
An erratic process of cell division can result in cancer.	Use slides, models and drawings to show mitotic divisions. Show what can happen when such divisions become erratic. Discuss the various types of cancerous growths: carcinoma, sarcoma, melanoma, leukemia and neuroblastoma. Compare and discuss benign and malignant growth.
Cancer is a major health problem in this country.	Discuss the possible reasons for the increase and/or decrease of certain types of cancer through improved and accurate means of diagnosing, longer life span and public awareness. Discuss and study the incidence of cancer by site, sex and age. Compare with other diseases.
Certain health habits lead to precancerous cellular changes.	Research and report on physical, chemical and biological carcinogens (solar radiation, x-rays and radium, atomic bombs, ultrasonic vibrations, cosmic rays, coal tars, synthetic hydrocarbons, aniline dyes, petroleum products, atmospheric pollution, cigarette smoke, and certain virus strains). Invite a representative of industry to speak to the class concerning precautions taken to protect workers from carcinogens.
Early detection and proper treatment are tantamount to a possible cure for cancer.	Have students construct posters showing cancer's seven warning signals. Develop and discuss graphs illustrating the additional number of lives that can be saved through early detection, diagnosis and treatment. Evaluate the importance of having regular annual medical examinations.
Respiration is an essential function of all living things.	Review the respiratory system. Demonstrate the function of lungs by using animal lungs. Inflate lungs with air hose. Relate lung capacity and elasticity to health. Discuss the effects of exercise on lung capacity and vitality.
The general condition of the respiratory system may be affected by early detection and disease control measures.	Discuss the danger of ignoring signs and symptoms of respiratory illness; include possible preventative measures in the discussion. Invite a doctor, medical technician or other expert to discuss current research efforts in this area. Develop groups to examine and evaluate the effectiveness of cold remedies through knowledge gained in interviews with pharmacists, doctors or other medical personnel and/or through reading magazines and journal articles.
Cigarette smoking is reported to have an effect on the respiratory system.	See unit on smoking for suggested pupil activities.

Control of respiratory diseases is the responsibility of each individual.

Develop a panel discussion on what each individual's responsibility is in the control of respiratory disease as related to himself, his peers, his family and community.

Invite a knowledgeable individual to speak to the class about international problems concerning respiratory diseases.

Man has not always understood the functioning of the cardiovascular system.

Review the circulatory system, structure and function.

Investigate reported fallacies associated with the working of the cardiovascular system such as arteries carry air, veins carry blood, liver as a source of all blood, and other misconceptions.

Examine how the work of such men as William Harvey contributed to greater accuracy in understanding the cardiovascular system.

The heart is a well-designed efficient pump.

Secure an animal heart from a biological supply house or local butcher shop. Have students examine:

a) size in relation to size of animal

b) blood vessels leading to and coming from heart

c) relative size of chambers

d) valve arrangement

e) location of the chorda tendinea

f) thickness of chamber walls; note variations

Compare the circulatory system of humans with that of lower forms of life.

Provide heart model for student examination and study.

Encourage students to construct a heart model as a special project.

Cigarette smoking is reported to have a detrimental effect on the functioning of the cariovascular system.

Study the statistical evidence which links smoking to heart disease and other circulatory diseases.

Discuss the specific effects of constituents of tobacco smoke on the rate of heart beat, elasticity of blood vessels, etc.

Local, state and national groups are organized to study and eliminate cardiovascular disease.

Investigate and report on the activities of local, state and national agencies concerned with research and treatment of cariovascular diseases.

Invite representatives of such agencies to speak with the class.

Tenth-Twelfth Grade Levels

Knowledge of disease-producing organisms and of the way they are spread has made it possible to develop measures to prevent and control the spread of communicable diseases.

Reference: **Control of Communicable Disease in Man,** American Public Health Association, 1790 Broadway, New York New York ($1.60).

There are three basic elements in the control of any communicable disease:
1. increase resistance

Outline the chain of infection of any communicable disease; determine how control measures break the chain of transmission.

2. control or eliminate the source of infection
3. control the mode of transmission

Though it was once believed that "childhood diseases" were part of growing up and that it was advantageous to have them early in life, it is now known that it is not good for children to have any disease.

Discuss the prevalence of "childhood diseases" since 1900. What factors have resulted in these changes?

Despite the fact that "childhood diseases" most commonly occur in childhood, they do attack adults.

Have the students do a survey in order to discover how many students have had specific "childhood diseases." Of those who have not had specific diseases, how many have knowingly been exposed to the disease? How can such cases be explained?

Discuss how specific "childhood diseases" affect adults. Research should be done on this.

Many diseases, particularly respiratory infections, are spread by droplet infection. A sneeze or cough sends a spray of moisture into the air, every droplet of which may be loaded with virulent organisms.

The droplets of smaller size may remain suspended in the air for considerable periods and when they evaporate, they leave a residue of fine dust-like particles which may contain viable pathogenic organisms.

Does the custodial staff treat the school's floor with disinfecting substances?

If your superintendent for buildings and grounds is prepared to discuss additional methods to "disinfect" the school, invite him to your class to do so (ventilation, heating, etc.).

The common cold is the most widespread infectious disease found in man.

The chief danger from a cold is that it leaves one susceptible to secondary infections such as pneumonia.

Should a boy or girl with a lingering cold risk going out of doors on a rainy night?

No one has yet found a vaccine which will prevent the cold.

Poliomyelitis is a preventable disease and immunization is recommended for all children.

Salk vaccine is given by injection and consists essentially of dead polio viruses. Sabin vaccine is given orally and consists of live, attenuated polio viruses.

Teacher Reference:
Report of the Committee on the Control of Infectious Diseases, 1966, American Academy of Pediatrics, $1.50.

Hepatitis is caused by a virus infection of the liver.

Hepatitis (inflammation of the liver) is caused by a virus and may be either serum hepatitis or infectious hepatitis.

Have class research and report on other diseases spread by the respiratory tract, i.e., infectious mononucleosis, infectious hepatitis.

Serum hepatitis is frequently transmitted via the administration of contaminated human blood plasma or serum.

Have a student investigate how some of the most recent epidemics of hepatitis originated.

Infectious hepatitis is transmitted via the oral-intestinal route.

Rabies is caused by a virus and develops in humans as the result of an infected animal's saliva entering the body through a wound or break in the skin.

Protection against rabies lies solely in prevention and requires public support and cooperation.

First aid for animal bites is a must, but it is no substitute for medical attention.

Venereal diseases are diseases spread from person to person by direct sexual contact. The two most common venereal diseases in this country are syphilis and gonorrhea.

Since self-treatment of venereal diseases is dangerous and ineffective, their diagnosis and treatment should be a function of a physician.

"Quacks" who advertise as specialists in "social diseases" or "men's diseases" are dangerous and should be avoided.

Biological warfare involves the use of disease-producing organisms to incapacitate an enemy nation during wartime.

Biological warfare may cause death to man and other forms of life.

Bacteria, rickettsia, fungi, viruses, toxins, and other biological products may be used. Disease could be spread through the air, the water supply, or the food supply.

Immunization against diseases that could be used in warfare would give the best protection. There are different types of disorderly cell growths.

There are many possible causes of cancer.

Research and discuss the new "before the bite" vaccine now in experimental use.

Get a local veterinarian to give information to a group who will then report to class.

Students may report on other diseases spread by animals and insects; e.g.:

typhus fever
bubonic plague
brucellosis
psittacosis
tularemia

Have students graph age distribution of venereal disease. Compare cases in Montana with those in other states.

Discuss: Why has syphilis been called "The Great Imitator?"

What should you do if you suspect you have a venereal disease? What effect will your decision have upon you as an individual? What effect will it have upon the community?

Invite an experienced VD investigator from your health department to discuss case-finding and contact-interviewing as methods of control.

Discuss with students the ways in which biological warfare could be waged.

Discuss the disease-producing organisms that could be used in biological warfare.

Discuss the ways in which disease-producing organisms might be spread during biological warfare.

Arrange for a doctor or public health nurse to discuss types of cancer (carcinomas, sarcomas) and their prevention. Present slides or a film showing tissue already invaded by cancer cells and x-rays of cancerous growths.

Develop committees to research the various areas of medical research concerned with finding causes of cancer. (See junior high unit for possible physical and chemical causes, viruses, heredity, aging, constant irritation, customs, habits, occupational exposure to carcinogens, etc.)

All tissue is vulnerable to cancerous growths.	Discuss the methods by which cancer spreads throughout the body. Show slides of healthy and cancerous tissue. Stress the importance of self-examination and early detection. Develop mixed panel to report on the possible and/or most probable cancer sites in males and females.
Medical science has made great strides toward improving diagnosis and treatment of cancer.	Arrange for a physician to explain available diagnostic techniques used in the detection of cancer such as biopsy, smear, proctosigmoidoscopic examinations and chest x-ray. Investigate the possibility of visiting a cancer clinic actively engaged in cancer treatment to discuss approved methods of cancer treatment such as chemotherapy, radiation and surgery. Discuss the use of unapproved drugs, unethical treatments and quackery with cancer victims. Examine what makes it possible for this problem to persist. Organize committees to report on possible breakthroughs in cancer research in the area of diagnosis, treatment and cure.
Varied and complex factors interrelate in the transmission and development of respiratory diseases.	Form committees to research and report to the class on the causes, source and/or mode of transmission, incubation period, communicability, susceptibility, resistance, preventative and/or control methods, care and current research on the following diseases which affect the respiratory system: a) colds b) tuberculosis c) emphysema d) asthma e) bronchitis f) hay fever g) lung cancer h) cystic fibrosis i) influenza j) pleurisy k) pneumonia l) any others
Respiratory diseases can be largely controlled through good health habits and proper individual decisions.	Discuss the possible decisions high school students can make that may affect the health of their respiratory system.
Community action is required if respiratory problems are to be prevented and/or eliminated.	Have the class create a situation in which a group of citizens concerned about community situations, related to respiratory diseases, approaches the local government in an attempt to remedy the situations. Demonstrate through role playing the problems which exist and their possible solutions. (Refer to Community Health Protection and Environment Unit for further information.) Relate community action to the changes that have occurred in mortality and morbidity due to respiratory disease. An example: air pollution through thermal inversion.
Cardiovascular disease is a major physical and psychological health problem.	Discuss changes that occur in family patterns when any member of the family suffers from a cardiovascular disease.

Chart and study types of cardiovascular disease, the possible contributing factors, the average age of onset, and the prevention and treatment.

Medical research is constantly searching for solutions to cardiovascular problems.

Investigate current research on artificial valves, heart-lung machine, pacemakers, electrocardiograms, cholesterol research, transplants and physical and emotional stress. Form committees for reporting findings to the class.

Discuss the work of medical research teams who studied citizens of Roseto, PA. Cardiovascular disease is practically non-existent among the overweight citizens of this town.

Personal health habits affect the functioning of the cardiovascular system.

Research and discuss the effects of each of the following on the cardiovascular system:

a) smoking
b) alcohol
c) diet rich in saturated lipids and cholesterol
d) stress (through exercise)
e) stress (other than through exercise)
f) exercise; consistent and sporadic

The incidence of cardiovascular disease varies from one country to another.

Relate the structure of American society to that of a less complex society to the incidence of cardiovascular disease.

Examine and evaluate the possible reasons for the dramatic increase in cardiovascular disease in the Orient since World War II.

Many agencies assist in the prevention and control of cardiovascular diseases.

Invite a representative of the Heart Association to speak to class about the work of that association.

Visit cardiovascular research facilities sponsored by Heart Association if available.

Suggest to students that they volunteer some time to help in the work of the Heart Association or association with similar goals. In other states, teen volunteers have participated in taking blood pressures in hyper-tension control programs.

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American Academy of Pediatrics
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American Public Health Association
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American Medical Association
535 Dearborn St.
Chicago, IL 60610

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2 East 103 St.
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1740 Broadway
New York, NY 10019

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825 Helena Ave.
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1 Madison Avenue
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Bethesda, MD 20014

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Venereal Disease Resource Unit
1201 16th St. N.W.
Washington, D.C. 20036

Montana Heart Association
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Montana Division
American Cancer Society
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VENEREAL DISEASE SECTION

Rationale for Unit: Education should be the basis for any venereal disease control program and should be the key to that program's success whether the target population is professionals, school children, or the public at large.

There was a time when "nice" people didn't talk about VD. Today we know that VD can and does infect people from all walks of life. Except for the common cold, venereal diseases are the most common communicable diseases in the country.

Syphilis and gonorrhea, because of their mode of transmission, have wide social as well as medical implications. The effective control of these diseases requires full effort and cooperation among physicians, educators, parents and students.

The concepts presented in this section and the accompanying learning activities should help the student to move through a series of learning experiences which should allow him or her to gain sufficient information to make intelligent and responsible decisions concerning personal behavior.

While the unit on VD should be a part of a progressive, structured curriculum, with attention given to basic anatomy and physiology of the human body during the student's elementary years, the subject of VD should be dealt with in the junior and senior high schools perhaps even in the fifth and sixth grades if the communicable diseases are being taught at that level.

CONCEPT I

Gonorrhea and syphilis can have immediate and long-range effects on individuals and society.

OBJECTIVE	SUGGESTED ACTIVITIES
Explain how specific reproductive structures are affected by gonorrhea and syphilis infections.	Give students an opportunity to view a film or filmstrip and to read books and pamphlets that contain information about the transmission and spread of gonorrhea and syphilis. Ask students to consider the following questions prior to using the material. —What are the specific reproductive structures involved in the transmission and spread of gonorrhea and syphilis? —How are these structures involved in the transmission and spread of gonorrhea and syphilis? Conduct a lecture/discussion on the structures of the human reproductive system and how the structures are involved in the transmission and spread of gonorrhea and syphilis. Use charts, models, overhead transparencies, or other visual aids to augment the lecture/discussion. Allow students to clarify ideas related to the transmission of gonorrhea and syphilis. Ask each student to use a diagram in the transmission of gonorrhea and syphilis. Have them describe briefly in writing how those structures are affected by the transmission of the disease. Have the students work in small groups or individually to prepare a visual aid, chart, or booklet on the topic, "Syphilis and gonorrhea are alike and different." Have each group give an oral presentation using their prepared materials.
Describe the infectious disease cycle for both gonorrhea and syphilis.	Have each student list ways he thinks communicable diseases are passed from person to person. Have a committee make up a composite list using the individual lists developed. Duplicate the list and distribute to each class member. Arrange students in small groups of three or four, and have each group select one communicable disease. Using classroom, library and community resources, have each group identify the infectious disease cycle selected. Each group displays its findings in visual form. Using visual aids prepared by teacher or students in previous learning opportunities, conduct a class discussion on the similarities and differences in the infectious disease cycles of gonorrhea and syphilis.
Predict possible immediate and long-range effects of gonorrhea and syphilis on the individual and society.	Give students an opportunity to view a film or filmstrip or to read a book or pamphlet that includes information on the immediate effects of gonorrhea and syphilis. Have students consider the following questions prior to and while using the material: —What are the immediate effects of gonorrhea? —What are the immediate effects of syphilis? —What are the long-range effects of gonorrhea? —What are the long-range effects of syphilis?

By using classroom, library and community resources, have each student develop a chart showing the immediate and long-range effects of gonorrhea and syphilis.

Have a group of students make a composite chart using the charts developed by each student. On the composite chart, students may identify and discuss whether each effect is an individual and/or societal problem.

After a role-playing situation has been constructed by the students and/or teacher, by role-playing, large or small group discussion, or individual written assignments, have the students deal with the problems inherent in contracting VD. Have the students respond to the following questions:

—What is likely to happen to the people who contracted VD, their family and friends (physically, mentally, morally and socially) in the next three weeks?
—What is likely to happen to them, their family and friends and society if:
  a. No one gets treatment?
  b. Only one gets treatment?
  c. Both get treatment?

(A suggested situation is to deal with two families who are close friends, gonorrhea having been transmitted from the teenage son of one family to the teenage daughter of the other family.)

CONCEPT II

Even though most communicable disease rates have been decreasing, gonorrhea and syphilis are still serious threats.

Compare the incidence of the leading communicable diseases.

Have class members participate in the formulation of a definition of the term "communicable disease."

Have each student list the communicable diseases that he has had during his lifetime. List the diseases the students identify on the chalkboard, and tally the responses.

Ask students to collect information about common childhood communicable diseases that family members have had.

By means of a class discussion, have students compare the list of diseases they have had.

Have students secure county or state indexes for reportable communicable diseases. These may be available from the school nurse, city-county health department or state health department. Prior to using the indexes, have the student discuss such questions as the following:
—What do you think the difference is between reportable and non-reportable diseases?
—Why do you think some diseases are reportable and some diseases are not?

Have student committees develop graphs and charts comparing incidences of reportable communicable diseases over a period of several years. (Example: Current versus last year, current versus turn of the century, or current versus past decades.)

Have the committees report changes in the incidences of the diseases shown on their charts.

Conduct a class discussion on why there have been changes in the incidences of leading reportable communicable diseases. List the reasons and have the class discuss which reasons they feel are most relevant.

Inquire into why the incidence of gonorrhea and syphilis has been increasing.

Ask individual class members to list reasons why they think the incidence of the venereal diseases has increased. Ask volunteers to discuss their reasons. List the reasons and have the students group the reasons into categories.

By working in groups of two or three, have students illustrate reasons (theories) for the increasing incidence of gonorrhea and syphilis: e.g., lack of knowledge, fear, greater sexual freedom and so forth.

Groups may illustrate their theories by developing collages, posters and video and/or audio-tape recordings; e.g., advertisements and interviews, mobiles and role-playing or skits.

Have students invite guest speakers knowledgeable about gonorrhea and syphilis to present their views on why there has been an increase in the incidence of venereal disease. They may wish to invite speakers such as the following:

1. Local physician
2. Representative of local health department
3. Parent(s)
4. School nurse or school physician
5. Social worker/sociologist
6. Representative of free clinic
7. Clergyman
8. Pharmacist

Students may wish to invite qualified resource speakers for a panel presentation.

Have groups of four or five students select one or two categories of reasons (theories) why the incidence of VD has increased and search for data related to the theories. Have them use the data to support, modify or discard the theories chosen.

CONCEPT III

Gonorrhea and syphilis, which are a primary threat to youth, can be effectively prevented and controlled.

Identify myths about gonorrhea and syphilis.

Have students work in teams of two. Each team asks other people what they think concerning the following:
—What causes gonorrhea and syphilis?
—How are gonorrhea and syphilis treated?
—How are gonorrhea and syphilis spread?
—How are gonorrhea and syphilis prevented and controlled?

Have teams record the responses to the questions and identify which responses they feel are myths about venereal disease. Each team reports the results of its survey of myths to the class. Have the class develop a composite list of myths about gonorrhea and syphilis.

Have each student design and present to the class a visual illustration (poster, slide, transparency, or model) that dispels at least one of the myths about gonorrhea and syphilis.

Ask selected students to contact community service organizations for assistance in displaying in the community selected visual aids that dispel myths about the venereal diseases.

Conduct a class discussion concerning how venereal disease myths interfere with the prevention and control of gonorrhea and syphilis.

Describe different methods that are useful to individuals in preventing venereal diseases.

Have students participate in a discussion concerning methods useful in preventing syphilis and gonorrhea.

Invite a local doctor, pharmacist or school nurse to answer students' questions regarding the prevention of gonorrhea and syphilis. Record the presentation for future use.

Give students an opportunity to view one of the newer films on the prevention of venereal diseases. Allow students to ask or write questions to be answered by the teacher or some other qualified authority.

Invite students to respond to and discuss the following questions:
—How are values involved in making decisions about ways of preventing gonorrhea and syphilis?
—What are the forces or factors in society (e.g., religion, mass media, family and peer pressures) that influence our values about prevention of gonorrhea and syphilis? Give all students an opportunity to share their ideas.

Analyze how diagnosis and casefinding help to prevent and control gonorrhea and syphilis.

Take students on a field trip to the local health department's (hospital's) laboratory. At the laboratory, have each student become familiar with the laboratory procedures which are used to diagnose gonorrhea and syphilis, including the following:
1. The darkfield microscope.
2. The VDRL flocculation test from a blood sample of syphilis.
3. Microscopic examinations of a stained preparation showing the gonococcus.
4. Culture of gonococcus bacteria showing the organisms growing on various types of nutritional media.

Invite a laboratory technician to explain diagnostic procedures for both gonorrhea and syphilis. Record the presentation for future use.

Invite the students to respond to the following questions:
—In what ways will health department venereal disease casefinding and interviewing patients about contacts help in the prevention and control of venereal diseases?
—Why should a male tell a female she may need treatment for gonorrhea?
—What should be done if a person finds that he has a venereal disease?

During the discussion, have students indicate how each of the situations relates to the prevention and control of venereal disease.

Arrange students in groups of five or six, and have each group discuss the following questions:
—How does diagnosis prevent and control VD?
—How does casefinding prevent and control VD?
—What are the limitations of casefinding?

Have the group select one member to summarize and report the group discussion to the class.

Describe services provided by various sources for the diagnosis and treatment of gonorrhea and syphilis.

Have individuals or small groups of students do research to identify the agencies or other resources in the community that are providing services for diagnosis and treatment of gonorrhea and syphilis. Have the class make a map showing the services available in the community. Include for each group or resource the type of service, hours, address, and telephone number.

Show a film that illustrates various sources of diagnosis and treatment of gonorrhea and syphilis. Following the film, have each student write one paragraph describing the types of resources for diagnosis and treatment.

Have volunteer students visit a treatment center, such as the local public health department, hospital, out-patient facility, or reputable "free clinics" and report to the class on the services available.

CONCEPT IV

Individuals have a responsibility to assist in community efforts for the control and prevention of gonorrhea and syphilis.

Explain laws related to the prevention and control of gonorrhea and syphilis.

Ask the students to respond orally to the following question: What laws can yo think of that are related directly and indirectly to the prevention and control c venereal diseases? List the ideas on a chart or other visual aid for future reference.

Provide students with a printed summary of current laws relating to venerea diseases. Discuss how the laws may prevent and/or control venereal diseases. A the conclusion of the discussion, compare the current laws with those thought of b students in above suggested learning activity. Allow students to revise the char they developed in that activity. Engage students in a discussion concerning th following:
—What are some limitations of VD laws in controlling venereal diseases?

—What are some ways of minimizing the limitations of laws in the control of venereal diseases?

Have students write to their state legislators for information on current legislation relating to venereal disease control; and to the State Department of Health and Environmental Sciences, Cogswell Building, Helena, Montana 59601; and county health departments for information regarding laws and regulations relating to venereal disease control. Have students report information they receive to the class and discuss how current legislation helps in preventing and controlling venereal diseases.

Develop action that can be taken by individuals and society which may result in the prevention and control of gonorrhea and syphilis.

Ask students to suggest different kinds of action that can be taken by individuals and society which may contribute to the prevention and control of gonorrhea and syphilis and to rank the actions in order of priority.

Have students work in groups of three to design a plan for implementing one of the priority actions. Give each group an opportunity to report its plan to the class. When feasible or practical, the class may decide to take some action.

Assign small groups of students to develop a VD treatment program within the limits of a hypothetical budget of $100,000 for one year. Ask each group to determine how the money will be used in the program. In designing their programs, students should consider the following factors: personnel, facilities, equipment, materials, services, other. Students should attempt to verify costs by consulting local resources so program funds may be budgeted realistically.

Have each student draft hypothetical state legislation designed to help prevent and control venereal diseases. Students may also work in small groups. Students may use the following guidelines in drafting their legislation:
—What is the title of your legislation?
—What is the legislation about? What is its purpose?
—To whom will the legislation pertain (e.g., age level, sex, and so forth)?
—What agency will administer the law (provide the services)?

Have each student (or group) prepare and distribute a written summary of the legislation. In a class discussion, ask students to consider how each piece of hypothetical legislation may or may not lead to prevention and control of VD.

Have each student respond to the following statements in writing:
—Individual responsibility for prevention and control of gonorrhea and syphilis is important because . . .
—Community responsibility for prevention and control of gonorrhea and syphilis is important because . . .
—Decisions made by individuals and society are important in controlling gonorrhea and syphilis because . . .

— References —

RESOURCES:

Pamphlets and other printed materials may be obtained from the following:

—Local city-county health departments.

—Local Public Health Nurse.

—Metropolitan Life Insurance Company, 1 Madison Ave., New York, N.Y. 10010.

—Pfizer Laboratories Division, Pfizer, Inc., 235 E. 42nd Street, New York, N.Y. 10017.

—Planned Parenthood Association, 810 7th Ave., New York, N.Y. 10019.

—Smith, Kline and French Laboratories, 1500 Spring Garden St., Philadelphia, PA 19101.

—State Department of Health & Environmental Sciences, Bureau of Health Education, St. John's Hospital Building, Helena, Montana 59601.

—U.S. Department of Health, Education and Welfare, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

—Western Electric, Service Division, Sunnyvale, CA 94086.

—Young Drug Products Corporation, P.O. Box 5, Piscataway, NJ 08854.

The following periodicals often contain articles relating to the venereal diseases:

—**American Medical Association Journal,** American Medical Association, 535 N. Dearborn, Chicago, Ill. 60610. (Weekly).

—**Children,** U.S. Dept. of Health, Education & Welfare, Children's Bureau, P.O. Box 1182, Washington, D.C. 20013. (Bimonthly).

—**Journal of School Health,** American School Health Association, Kent, Ohio 44240. (Monthly).

—**PTA Magazine,** National Congress of Parents and Teachers, 700 N. Rush Street, Chicago, Ill. 60611. (Monthly).

—**Today's Health,** American Medical Association, 535 N. Dearborn, Chicago, Ill. 60610. (Monthly).

PERSONAL HEALTH

Rationale for Unit: This unit provides the students with the opportunity to evaluate their attitudes toward personal health practices. Hopefully, they will then concern themselves with a sense of personal health responsibility — a "do-it-yourself" project toward health betterment.

Our personal health is continuously reflected in our daily activities. If the health of an individual is at an optimum level, it seems reasonable to assume the individual would enjoy the greatest capability at both work and leisure activities. In order to achieve growth or maintenance of a desirable level of personal health, the educator must offer adequate information to equip the student for decisions related to health. The particular responsibility to be felt by the educator in this unit relates to personal cleanliness, dental health, vision, hearing, physical activity, and rest.

This unit relates well with the following units: Growth and Development; Nutrition; Prevention of Disease; and Mental Health.

CONCEPTS	SUGGESTED ACTIVITIES
Kindergarten-Third Grade Level	
Bathroom sanitation is essential to good health habits.	During orientation to classroom procedures, each child should be shown to the toilet and washing facilities, and the teacher should discuss the reasons for elimination and essential sanitation habits.
	Discuss the importance of habits of neatness, sanitation, and courtesy to others in the bathroom.
Strangers can be dangerous.	Dramatize the proper reaction to offers made to students by strangers.
	A discussion about the policeman being the student's friend will be desirable at this age. A policeman's visit to the classroom would be helpful.
Our health is affected by our surroundings.	Discuss the importance of a clean and bright home, schoolroom, etc.
	Have students suggest ways in which the schoolroom can be improved.
	Students collect pictures to show how proper heating, lighting, colors of walls, and furniture, ventilation, etc., add to comfort.
Pure food is essential to good health.	Discuss the necessity of precautions taken in the kitchen and lunchroom (clean clothing, rubber gloves, hair nets, etc.).
	Have students help to make posters that show good lunchroom practices.
	Have students observe sanitation procedures in the kitchen and lunchroom.
	Visit a nearby market or discuss the reasons for packaging food, for refrigerating food, etc.
Sleep, rest, and proper food are important for tomorrow's exercise and play.	Dramatize what happens when pupils do not get enough sleep.
	Discuss relaxing activities that should be engaged in before going to bed.
	Explain why rest is important and needed at certain times.
	Demonstrate a variety of exercises or activities that can help one to relax.
Daily mouth care is important to dental health.	Display a collection of magazine pictures about dental health on bulletin board or arrange the room with pictures, models and objects pertaining to various aspects of dental health. (Dental tools, animal teeth, human teeth, tooth models — healthy and decayed, toothbrushes, etc.)
	Prepare posters or display on dental health.
	Have children prepare a daily brushing chart to be taken home and hung in the bathroom to record when their teeth have been brushed.
	Demonstrate with large set of teeth and toothbrush the proper way to brush teeth including use and care of toothbrush and flossing techniques.
	Show an appropriate filmstrip demonstrating proper methods for the care of teeth.

	Demonstrate ways of cleaning teeth when a brush isn't available (swish and swallow, eating an apple, etc.).
	Distribute toothbrushes and small tubes of toothpaste for all children to take home and use.
	Make tooth powder in class. Students mix the following ingredients in the proportions indicated: 1 teaspoon salt, 2-3 teaspoons baking soda, and a drop or two of peppermint, wintergreen or cinnamon. Have pupils take some home to use when brushing teeth.
Personal health is strongly related to personal habits.	Discuss the importance of using your own handkerchief, drinking glass, etc.
	Have school nurse explain how germs enter the body through cuts in the skin: Explain how to cleanse and why this is important.
	Discuss the importance of immunization.
	Bulletin board on good health habits.
	Have children illustrate proper clothing for different types of weather.
Respiratory diseases can be avoided through proper health habits.	Discuss relationship of good health habits and keeping well. Have students construct a list of good health habits.
	Construct a poster illustrating the health habits that help to prevent germs from entering respiratory system.
	Use an atomizer to demonstrate how coughing and sneezing spread germs.
Good posture is a necessity.	Demonstrate the difference in appearance of individuals with and without good posture.
	Have students list and discuss daily habits detrimental to posture.
Care of the senses is a must to personal health.	Demonstrate the proper method of blowing the nose, cleaning the ears, removing dust from eyes, etc.
	Emphasize the importance of the eyes by blindfolding the students for a short period of time.
	Arrange for community resources to health screen the students' senses.
Fourth-Sixth Grade Level	
Injuries, infection, and improper diet can affect the functions of the body.	By x-ray examine a broken bone.
	From daily newspaper clip out all the accidents needing medical care.
	From school nurse, find out how many accidents occurred in school to date. Have students write a paper on how these accidents could have been avoided.
	Report on common childhood diseases: causes, symptoms, treatment, and prevention. Present reports in skits.

Proper exercise, good posture and personal cleanliness insure proper body functions and continual good health.	Give an accepted physical fitness test. Develop a chart with individual goals. Retest at intervals.
	Set up standards for good posture. Have a class posture contest.
	Have panel discussions on grooming and cleanliness.
	Discuss sleep, rest, relaxation, and changing activities.
Daily personal care promotes dental health.	Observe one's own teeth in a mirror to determine how clean they are. Observe any debris by removing some with toothpick and observing under microscope.
	Diagram and discuss teeth showing progress of decay. Obtain decayed extracted teeth from dentist and display.
	Demonstrate proper ways to brush teeth and discuss time for brushing them.
	Discuss the value of the use of toothpaste or tooth powder.
	Supervise toothbrushing or rinsing teeth after lunch.
Each of us has a responsibility in the fight against disease.	Discuss all possible ways to prevent spread of disease.
	Develop individual posters depicting ideas regarding spread of disease.
	Ask children to discuss disease prevention with other adults, parents.
Respiratory diseases can be controlled through good health habits.	Discuss how our health habits affect the body's resistance; relate this to respiratory disease.
	Students discuss how they can tell when they have a respiratory disease.
One's daily diet should be planned each day to include foods which produce sufficient amounts of nutrients and calories.	Collect menus from cafeteria for a week and evaluate them for basic four contents.
	Exhibit a display of healthful foods for school lunchroom.
	Prepare sample breakfast, dinner, snack, and party menus. Compare own daily intake.
	Discuss implications of growing problem of obesity.
	Relate obesity to calorie intake and output. Determine how our body uses energy.
	Prepare charts or posters showing an infant, growing child, construction worker, mother, grandmother, etc. Discuss their individual foods needs.
Exercise contributes to the efficient functioning of the body.	Explain how muscles develop in size, strength and efficiency.
	Discuss the effect of exercise on heart, circulation, respiration, digestion, assimilation, and elimination.
	Discuss how regular practice in a sport can help increase your strength and skill.

Demonstrate correct techniques of moving, lifting, and carrying heavy objects.

Explain how fatigue can contribute to poor physical performance and posture.

Discuss detrimental effects of inactivity.

Cigarette smoking is harmful to the body.

Discuss the effects of smoking on the body:

a. lung cancer
b. heart rate
c. appetite
d. body temperature
e. nervous excitement and relaxation
f. irritation of nose/throat
g. life span

Personal appearance is affected by clean skin, ears, hair, and hands.

Demonstrate the dirt left on portion of the body after washing by using a cotton cloth with alcohol over same area.

Seventh-Ninth Grade Level

Personal cleanliness and good grooming are a result of individual pride.

Invite a beauty consultant to discuss fashions, application of cosmetics, etc.

Discuss reasonable dress regulations and other forms of sensible grooming.

Discuss "self-respect."

The senses require constant care.

Suggested topics of discussion:

Corneal transplants

Periodic eye exams

contact lens

hearing aids

safety devices used in sports and industry

Investigate the Braille system. Obtain a specialist to speak and display materials.

Report the effects of TV and radiation on eyes.

Posture is a reflection of mental and emotional health.

Discuss one's posture and discuss how often it reflects a person's confidence.

Healthy teeth and gums are important to appearance, speech and the enjoyment of living.

Use disclosing tablets for self-testing. (Local dentist or local dental society can tell you where to get supply.)

Plan a classroom or bulletin board display which shows that a good, clean mouth free from disease and tooth decay is:

—a beauty aid.

—important in smiling, laughing, talking and displaying your personality

—needed to chew your food well

—an aid in obtaining good employment

—necessary to keep you feeling well and free from pain at all times

—an aid in making and keeping friends

—in general, an indication of good body health and care.

Communicate with the Dental Health Bureau requesting materials on dental health.

The health of the community is everyone's responsibility.

Investigate the incidence of diseases in the community. Relate the incidence of disease to availability of reliable methods of prevention.

Interview health officials locally as to health problems and solutions.

Examine and evaluate the health problems and community resources available to aid people of the community. Develop suggestions for improvement.

The general condition of the respiratory system may be affected by early detection and disease-control measures.

Discuss the danger of ignoring signs and symptoms of respiratory illness; include possible preventive measures.

Invite a doctor or public health representative to discuss current research efforts.

Develop groups to examine and evaluate the effectivenss of cold remedies.

Physical activity develops strength, flexibility and good health.

Explain and discuss the physical fitness test administered within the school.

Examine "recess" activities in your school. Does everyone participate? What are the objectives of recess? Develop objectives.

Stress the importance of daily physical activity. Provide time each day for every child's participation in some form of vigorous activity.

One's weight may affect appearance, self-confidence, relationships with others, and personal health.

Identify and discuss causes of obesity, e.g., overeating, poor eating habits, glandular disturbances, emotional disturbances.

Evaluate the disadvantages and dangers of obesity, e.g., fatigue, discomfort, play and exercise, limited group activity, personality difficulties, and the effect on such internal organs as the heart, arteries, and kidneys.

Identify and evaluate the causes and dangers of underweight: worry, disease, fatigue, vitality, heredity, poor eating habits, and lowered resistance to disease.

Collect newspaper clippings and advertisements about crash diets, reducing fads/pills, and quackery.

Invite a nutritionist or home economist to discuss weight reduction.

Sleep, rest, and relaxation are important in maintaining a healthful body.

Discuss and report on:

- beneficial effects of sleep
- degrees of sleep
- conditions necessary for sleep
- sleep and energy build-up
- how much sleep is necessary?

Discuss techniques of relaxation.

Discuss various types of fatigue, physical, mental, chronic.

Tenth-Twelfth Grade Level

A person's entire well-being is aided by adequate nutrition.

Discuss cardiovascular fitness.

Develop individual plans for maintaining personal fitness.

Examine recreational and leisure pursuits, individually oriented.

Activity is important to maintaining good health.

Investigate research concerning relationship of nutrition to aging, diabetes, arthritis and heart disease.

Discuss what one needs to know to meet the nutritional needs of each family member. What factors change these needs (age, allergies, activities)?

Report on saturated fats and cholesterol; point out opinions on relationship to disease. Check food labels to see which products state they have polyunsaturates.

Personal health habits affect the functioning of the cardiovascular system.

Research and discuss the effects of each of the following on the cardiovascular system:

a. smoking
b. alcohol
c. diet rich in saturated lipids and cholesterol
d. stress (through exercise)
e. stress (other than through exercise)
f. exercise; consistent and sporadic

The well-being of the respiratory system is a basic must for good health.

Discuss material from other units on: Smoking, Community Health, Disease.

Report on hyperventilation and vital capacity; relate specifically to sports.

Discuss exercise for cardiovascular fitness.

Regular and reasonable physical activity is essential to the improvement and maintenance of physical capacities.

Research and report on the criteria to be used in determining how much daily exercise one should experience. Consider:

a. age
b. results of medical examination
c. general reaction to and recovery from physical activity
d. aerobics program
e. caloric requirements of activity.

List the various seasonal sports and their contribution to physical fitness, e.g.:

a. team sports
b. individual sports
c. rhythmics
d. combative activities
e. water sports
f. outdoor sports
g. jogging.

Develop a personal year-round exercise and activity program.

Investigate the role of exercise in weight control and reduction.

Guest Speaker: Invite a cardiologist to speak on the role of exercise in delaying physiological aging.

Explore the following conditions as they relate to selection of and participation in physical activities:

a. physical examination
b. factors used in selecting a sport
c. necessary training
d. equipment
e. safety factors
f. availability of facilities.

Discuss the topic: "Exercise is desirable at any age."

Selected References

The following selected references and resources are suggested to supplement and enrich this unit.

MSDHES Film Library, Cogswell Building, Helena, MT 59601.

American Hearing Society, Washington, D.C. 20006.

American Podiatry Association, Washington, D.C. 20010.

CIBA Pharmaceutical Co., 556 Morris Ave., Summit, NJ 07901.

Colgate-Palmolive Co., 300 Park Ave., New York, NY 10010.

Lever Brothers, Public Relations Division, Consumer Education Dept., 390 Park Ave., New York, NY 10022.

National Society for the Prevention of Blindness, 16 E. 40th St., New York, NY 10016.

Personal Products Corp., Ed. Dept., Milltown, NJ 08850.

The Toni Co., Merchandise Mart Plaza, Chicago, IL 60654.

U.S. Office of Education, Dept. of HEW, Washington, D.C. 20025.

Montana Lung Association, 825 Helena Avenue, Helena, MT 59601.

American Dental Association, Bureau of Dental Health Education, 211 East Chicago Avenue, Chicago, IL 60611.

Dental Health Bureau, Dept. of Health & Env. Sciences, Cogswell Building, Helena, MT 59601.

Health Education Bureau, Dept. of Health & Env. Sciences, Cogswell Building, Helena, MT 59601.

American Society of Peridontology, Rm 924, 211 East Chicago Ave., Chicago, IL 60611.

NUTRITION

CONCEPT I

Food is essential for life and is available from a variety of sources in a variety of forms.

Kindergarten-Third Grade Levels

BEHAVIORAL OBJECTIVE	SUGGESTED ACTIVITIES
The students will be able to list three parts of a plant that are essential for it to obtain food.	Sketch on the blackboard the three parts of a plant which are necessary for it to obtain food: i.e., roots, stem, leaves. Bring a plant to the classroom and review the three parts with the class. Dye a carnation or celery stalk. The class can see the transport system within the plant.
List the three elements needed for plants to grow.	Grow plants from seeds, with and without plant food. Compare the rates of growth and general health of these plants: Plant A — in soil, water twice a week, in sunlight. Plant B — in soil, do not water, in sunlight. Plant C — in soil, water twice a week, keep in the dark. Plant D — in distilled water (or sand which has been washed several times,) and water twice a week, keep in sunlight. Answer the following questions: How does a plant get its food? Can a plant live without water? Without light? Without soil? Why not?
	Discuss: Can animals live without food? Without water? Can they live longer without food or without water?
Describe what foods animals eat and how these animals get their food: **a. animals which eat plants** **b. animals which eat meat, milk, fish or insects** **c. animals which eat both plants and animal protein**	**Discuss:** The different kinds of food that various animals eat, using examples of animals which are familiar: e.g., horses eat grass, oats, hay; cats eat fish, meat, milk. Children may enjoy telling about the foods their pets eat at home. **Visit** a farm and observe what the different animals eat.

List three animals from each of the above categories.

Discuss: The fact that people like and eat more different kinds of food than other animals do.

A child who has new kittens or puppies at home may provide a personal experience for talking about milk as food for young animals.

Teaching Aids

Animals can be herbivorous (plant eating) or carnivorous (meat eating) or both.

a. Animals which eat only plants as mature animals could include cows, horses, pigs, sheep, deer, elk and squirrels.

b. Animals which eat milk, meat, fish or insects include lions, birds of prey, sharks, other members of the cat and dog families, some insects such as spiders and praying mantis.

c. Animals which eat both plants and animal sources of protein include chickens, beavers, robins, trout and man.

CONCEPT II

Functions of food in man include production of energy and growth and repair of body tissues.

BEHAVIORAL OBJECTIVE

Students will be able to describe how the body uses food for energy. Compare a car's need for gas with our body's need for food.

Give at least three examples of the importance of breakfast after having been without food during the night, and the importance of food throughout the day.

SUGGESTED ACTIVITIES

Show the picture of the train. Ask "What is this? What happens when the train runs out of fuel?" Relate the train situation to a person's need for energy.

Show a picture of a child running and a child who is very tired. Ask the class which child had food to eat.

Use pictures to show different kinds of fuel being used to produce heat. Examples: gas stove, wood fire, coal furnace.

Figure out how many hours pass between the last food eaten in the evening and breakfast the next morning. Emphasize that like the clock which runs down, our bodies run out of energy and need to be refueled.

Have children keep track of what they eat in the morning for a few days. Evaluate the breakfasts.

Use Dairy Council material, **What Did You Have for Breakfast this Morning?** Poster shows children from different countries and ethnic groups and is intended to help children recognize that food habits can be different but still good. The teacher's guide tells about the food habits in the countries of the children pictured. Have children participate in making a bulletin board or display on the subject "Food in the Morning" for use at a PTA meeting or parents' night.

Discuss children's favorite foods for
—breakfast
—lunch
—dinner or supper
—after-school snacks.

If your school has a school lunch program, study the school lunch menus for the week ahead; learn about new foods in class before they are encountered in the lunchroom.

List three factors which influence growth in addition to food.

Discuss: Are all boys and girls who are the same age the same size? Are all grownups the same size?

Have each child keep a record of his height and weight at intervals. Each child can make a chart or use the record "How I Grow" from the National Dairy Council: a tag 5½ x 3 inches for each child, 2 cents each.

List five foods that make strong and healthy teeth and foods which are detrimental to dental health.

Construct a make-believe person using styrofoam blocks held together with toothpicks, or use a bulletin board display built with discrete units of colored paper. The units can be compared to cells. Discuss what happens when you run out of "new cells" for the make-believe person.

Teaching Aids

1. The Child Nutrition Act of 1966 provided federal funds for a pilot School Breakfast Program for needy children and for those who travel long distances to school. If your school participates in the program, it can provide an opportunity for teaching the importance of food in the morning.
2. The phrase "food in the morning" implies that traditional breakfast patterns need not limit the choice of foods eaten. Many children do not eat traditional breakfasts of bacon, eggs or cereal and milk. It is not important that they do so. But **it is important that the child have something to eat in the morning.** In our culture the term "breakfast" implies a rather rigid food pattern to many people. Some children, if asked what they ate for breakfast, may reply "nothing" when in fact they did eat something that morning. If that something was a left-over piece of meat, or rice from last night's dinner, the child may not think of it as breakfast.

The morning meal should contribute a substantial part of the calories and protein needed for the day. For example, all of the following breakfasts make signficant contributions to total nutrient needs and provide enough calories for the morning's activities:

—Orange juice, ready-to-eat cereal, milk
—Toast, butter, milk shake
—Peanut butter sandwich, ice cream
—Grits, ham, milk
—Tomato juice, rice, sugar, milk
—"Instant" breakfast drink made with milk.

CONCEPT III

A variety of foods provides the essentials of an adequate diet, and can be identified through the four food groups.

BEHAVIORAL OBJECTIVES

Students will be able to directly experience that there are many kinds and types of food, and identify five from the tasting party by feel, touch and/or sight.

Identify the four food groups available to man by completing "What's missing" charts, listing foods in each group, or successfully playing any of the basic four food identifying games.

SUGGESTED ACTIVITIES

Field trips may be arranged to such places as: a dairy farm, creamery, ice cream plant, produce farm, cafeteria, super market, food warehouse, bakery, sugar factory, ranch, butcher shop.

To acquaint students with the four food groups, use the posters, **Four Food Groups,** or **A guide to Good Eating** (both from National Dairy Council).

Use "Old Mother Hubbard" or any other bulletin board that depicts the four food groups. (One teacher enlarged Old Mother Hubbard and stood the figure by a bookcase with several shelves, each labeled with the name of a food group. Children brought empty cans and cartons from home to place on the appropriate shelves.)

Games related to the four food groups:
—Food Baseball — Twenty baseball-shaped cards with pictures of food are used in this game.
—Food Toss — The student tosses food pictures or food models (NDC) onto oil-cloth that has been divided into four squares. Each square is labeled with the name of a food group.
—Spin the Basic Four
—Food Bingo
—"One of These Doesn't Belong" — Play the music from the Sesame Street Song, "One of These Doesn't Belong," then have a student place three pictures of food (e.g., two from the milk group and one from a different group) on the flannel board. Have another student identify which one of the foods doesn't belong in the group.

An activity utilizing the four food groups plus the "other" group:
—Good Food Train — An engine and four cars can be made out of decorated packing cartons. Each car is labeled with the name of a food group and a picture of a food from the group. The student places containers of food into the appropriate car.

Compile a pageful of several pictures from magazines of food products and non-foods (some things that go in the mouth but are not foods, like toothbrush, lipstick, mouthwash). Ask children to circle the food item.

Use, as story books or coloring books, **Dan and Sue Meet the Friendly Foods,** or **The Good Foods Coloring Book.** (Both from USDA)

Have a tasting party. Bring some foods which will be familiar to all the children, and also some more unusual ones. Try presenting in a raw form some vegetables or fruits usually eaten cooked (e.g., small pieces of cauliflower, turnip strips). If time allows, let children participate in preparing the foods for the party.

An art activity might be combined with a tasting party, with children drawing the different foods and learning to spell their names.

Discuss and illustrate various forms in which orange juice is available to us from the grocery store; whole orange, frozen, canned, tang, dehydrated orange concentrate.

suggestions for tasting party:
—raw vegetables with a dip
—raw fruits
—processed foods compared to original product:
raw, canned, frozen, freeze-dried, etc.

Teaching Aids

Often a child will try a new food or even one he has disliked if the rest of the class is trying it. In conducting a tasting party, present the foods to be tasted in bite-sized pieces that can be picked up in the fingers so the texture can be felt. Encourage each child to try every food. Don't force a child to eat a food if he refuses, or make an issue out of a dislike expressed by a child.

CONCEPT IV

We enjoy eating food for social, psychological and sensory pleasures as well as for physiological functions to sustain life.

BEHAVIORAL OBJECTIVES

The students will be able to list four reasons why we eat food other than for energy and growth.

Give two examples of how foods are used for pleasure.

SUGGESTED ACTIVITIES

Discuss: We all have favorite foods that give us pleasure because we like the way they taste, feel, smell and look. Make a list of the favorite foods of all the students in the class. See how many different foods there are.

Have students identify foods at a smelling party. Provide vanilla, ground pepper, dehydrated onion, lemon extract, orange extract, coffee grounds, whole cloves, vinegar, cinnamon, molasses, peanut butter, chocolate syrup.

Discuss: Everybody has his own idea of what foods taste good. Discover how we taste flavors by mapping out the areas of the tongue which taste different flavors. Pose the problem: On what parts of the tongue can we taste sweet, sour, salt, and bitter foods the best? With a toothpick, students can drop a little of each food on different parts of the tongue. Try to determine at which part of the tongue the flavor is tasted best.

Discuss: Food is part of many happy situations that give us pleasure. Discuss the place of cake and ice cream in birthday parties.

Read the tea party sequence from **Alice in Wonderland.**

Discuss: Mealtime is a time for the family to be together.

Discuss holidays in which food has a traditional place. Make bulletin board and displays of foods traditional for Thanksgiving, Christmas, Passover, Easter, etc., at the appropriate times during the year.

Teaching Aids

Taste buds on the tongue are located in the following places: sweet, tip of the toungue and on sides halfway back; salt, tip of tongue and around sides; bitter, back of tongue; sour, sides of tongue.

CONCEPT V

Our daily need for a variety of foods is met in different ways in different parts of the world.

BEHAVIORAL OBJECTIVE

Students will be able to describe the food habits of ethnic groups different from their own in terms of the basic four food groups.

Have students describe how different members of their families have different eating habits, food preferences, and meal patterns and list three things they like about their families' eating habits and three ways they feel these can be improved.

SUGGESTED ACTIVITIES

Discuss: Different families eat different kinds of food. Read story, "Kenny learns about food and mothers," available from Scott, Foresman Co. (Reprinted from the book, **Health for All,** Book 3). The story of Kenny Lee and Manuel Gomez, who learn about food and mothers by eating lunch at each other's houses.

Discuss: Every family has its own favorite foods: encourage the students to talk about foods their families enjoy. If some children cite foods some of the others have never eaten, arrange to bring some of that food to class for the other children to taste.

Use Dairy Council piece, "What did you have for breakfast this morning?" to discuss food habits in other countries.

Invite a foreign student to talk to the class about the foods eaten in his country and how they differ from foods eaten in the U.S.

Discuss the methods of eating in other countries (chopsticks in the Orient; no eating utensils at all in some countries; different ways of holding knife and fork in Europe and America; no knives in some Asian countries because the food is all in small pieces and doesn't have to be cut.)

Whenever possible offer choices (between nutritionally sound alternatives) to the students — during snacks, lunches, tasting parties. Talk about **why** a child chose a certain food (usually because he likes the food).

Discuss: Are there other reasons for choosing foods? Why do you think your mother chooses the foods she does for your family? (Because she likes them, because she knows what kinds of foods you need to be healthy.)

Teaching Aids:

Encourage children to try new foods and to experiment. A choice made because a food is liked should not be downgraded. But children should be helped to realize that more than taste should be involved in choosing foods to eat. Strive to **avoid** instilling the attitude that there are two kinds of food: "Those I like" and "Those which are good for me." There is no one perfect food or pattern of eating.

CONCEPT I

All nutrients needed by the body are available through food. No food by itself, however, has all the nutrients needed for full growth and health. Many kinds and combinations of food can lead to a well-balanced diet, thus, we need a variety of foods daily. Guidelines are available which enable us to secure these nutrients from familiar food sources.

BEHAVIORAL OBJECTIVE

Fourth-Sixth Grade Levels

Students will be able to list the six classes of nutrients which are necessary for health and give general functions of each class of nutrients.

SUGGESTED ACTIVITIES

List the foods that two or three students ate yesterday. Identify the foods which are good sources of the six nutrients.

Discover what calcium does in bones. Place a chicken bone in vinegar. After a few days, the bone will become pliable and will bend easily. Ask the questions:
—What did the vinegar (acid) remove from the bone? (calcium)
—What does the calcium do for the bone? (makes it hard, keeps it from bending)
—Why didn't the entire bone dissolve? (bone contains other things besides calcium; the bone's **protein** did not dissolve.)
—Do you think there is more than one kind of cell in bone?

Discuss: Calcium is accumulated in bones as we grow older. Who do you think needs the most calcium? Who needs the least?

Ask students how much of the human body is water.

Have the class **make a list** of all the foods they think contain 1) protein, 2) fat, 3) starch.

Conduct tests for these substances on a variety of foods the children provide. As tests are made, make a revised list. Students will learn that many foods contain these three substances.

To conduct a test for protein: Using a candle or bunsen burner, burn a small feather. The resulting odor is characteristic of protein. Use the test to determine the presence of protein in foods. Test cheese, meat, dry skim milk powder, beans, egg white, peanuts, lunch meat, butter, mayonnaise, sugar.

To conduct a test for fat: Chop or mash the food sample; rub a small sample of food on a piece of brown paper bag. Heat the paper with the food on it over a light bulb. If a grease stain is left on the bag, fat is present. Foods to try: cheese, bacon, mayonnaise, egg yolk, egg white, lunch meat, peanut butter.

To conduct a test for starch: Place a drop of iodine on the food. If starch is present, a blue-purple-black color will result. Foods to try: potato, apple, bread, spaghetti, corn. beans, sq··ash.

Many kinds and combinations of food can lead to a well-balanced diet. Using a daily food guide, students should write meal plans for three days which provide an adequate intake of nutrients.

Students keep a record of their own food intake for three days. Classify their foods into four food groups and determine whether their diets are nutritionally sound.

Ask the school lunch program supervisor to allow the class to plan the school lunch menu for a day, basing their menu on the basic four. Have the supervisor explain to the class the requirements of the Type A school lunch.

Teaching Aids

1. Consult home economics and/or biology teacher on information relating to nutrients — what they are, how they function, where they come from.

   The following books are excellent nutrition references that should be used for the entire nutrition curriculum.

   a. Leverton, Ruth, **Food Becomes You,** New York, Doubleday and Co., 1965.

   b. Lowenberg, Marian, **Food and Man,** New York, Wiley and Sons, 1968.

Six classes of nutrients are protein, fat, carbohydrate, vitamins, minerals, and water. There are over 44 specific defined nutrients.

Each nutrient has specific uses in the body. All persons need the same nutrients throughout life, but in varying amounts depending on age, sex, size, activity and state of health.

Suggestions for kinds and amounts of nutrients are made by scientists and are found in nutrient tables called the Recommended Daily Dietary Allowances. The RDA's for nutrients are established by the Food and Nutrition Board of the National Academy of Sciences — National Research Council. Amounts of nutrient suggestions are specific to age categories and sexes.

A common daily food guideline used in the United States, the Basic Four Food Groups, categorizes food by quantity and type and recommends amounts needed daily.

Refer to **How Food Becomes You** or **Food and Man** for specific nutrient contribution of each of the Basic Four Food Groups. (Or consult with home economics or biology teacher.)

CONCEPT II

Nutrients in foods have an effect on energy, growth, and development.

BEHAVIORAL OBJECTIVE

Students will be able to identify the three nutrients which furnish energy for body functions, and list five foods which supply sufficient amounts of these nutrients.

SUGGESTED ACTIVITIES

Ask students to gather information about diets of people of other countries. What foods in the diets provide the needed fats, carbohydrates and proteins?

Draw a chart of the four food groups, i.e., milk group, meat group, fruit and vegetable group, bread and cereal group and determine whether specific foods are a good, fair or poor source of carbohydrates, protein, or fats.

Students will be able to list the specific nutrients needed for growth and repair of bones and teeth, gums, blood cells, thyroid gland, skin, eyes and all cells.

List two sources of each of the nutrients.

Invite a dentist or nurse to the class to discuss dental health and nutrition. Discuss how fluoride helps in the prevention of cavities.

Have students indicate what they would substitute for familiar foods to supply specific nutrients; i.e., what would they eat to provide vitamin C if fruits are not available?

Ask students to bring labels on prepared foods such as breads, cereals, spaghetti, powdered milk, salt or flour. List all the foods they find that have been enriched and identify the added nutrients.

Discuss the Food and Drug Administration's nutrient labeling on many foods found in the super market.

Invite home economics teacher to help interpret nutrient labeling.

Teaching Aids

1. Fat, protein and carbohydrates furnish energy for work, play and body functions such as heartbeat and circulation, breathing and nerve transmission.
2. The following body materials have a general need for similar nutrients, but also have a special need for a specific nutrient.

Body Materials	Needed Specific Nutrients	Food Sources
Gums	Vitamin C (ascorbic acid)	Fruit & Vegetable Group Citrus sources
Bones & Teeth	Phosphorus & Calcium	Meat Group (Protein)
Blood cells	Protein & Iron	Dark Green Vegetables (Iron)
Eyes & Skin	Vitamin A	Fruit & Vegetables Dark Yellow & Deep Green
All cells	A variety of nutrients available from a variety of food sources.	Basic Four Food Groups

Teaching Aids

3. Heredity is a factor in determining height and weight. Adequate nutrition enables us to reach our inherited height potential.
4. Factors influencing weight include amounts of food eaten (total calories), exercise, emotional problems, social eating patterns and cultural ideal of the "perfect" shape.

Students will be able to identify a factor other than nutrition which will determine his growth pattern.

Determine the height and weight of each person in the class. Determine the average height and weight and ask the students to find how they compare.

Students will be able to list factors which cause individuals to be underweight or overweight.

Ask students to guess how tall they will be as adults, and ask why.

Invite the school nurse or community health nurse to talk to the class about growth and development. Suggest that she bring along instruments for measuring height and weight and charts she uses.

Discuss the balance between food consumed and energy expended and what happens when one exceeds the other.

Discuss society's ideal of the "perfect" body build for a man and woman and how this influences our weight.

Discuss social situations and emotions which may lead to an individual's overeating.

CONCEPT III

Nutrients become you by digestion, absorption and metabolism.

BEHAVIORAL OBJECTIVE

Students will be able to describe the digestive process by listing the parts involved and writing a description of the functions of each.

SUGGESTED ACTIVITIES

Demonstrate the path that food takes using a diagram of the human gastrointestinal system.

Illustrate that peristaltic action forces food along regardless of gravity by showing that you can swallow uphill. A student can stand on his head, feet against a wall to steady himself, and drink water or milk from a straw without much difficulty. Discuss the significance this has for space travel.

Demonstrate that starch will not dissolve. Hold up a cracker. Ask: What will happen to the cracker after it is eaten?

— Is the cracker ready to be used by the cells as it is?

— What must happen to it before the cell can use it?

Grind the cracker into a powder, and put a teaspoon of powder into a glass of water. Put a teaspoonful of sugar into another glass of water. Stir each with a spoon. Ask: Why is the starch water cloudy? Why is the sugar water clear? (The starch particles are big enough to see. The sugar molecules dissolve in the water and are too small to see.)

Determine the presence of starch by adding a few drops of iodine to the starch water. It will turn blue-black. Add iodine to the sugar water. It will remain tan colored, indicating that there is no starch present.

Conclude: that starch must be changed into something else in order to dissolve. Ask: What is starch changed into so that our bodies can use it? What changes it?

Discover that starch is changed to sugar in the mouth. Have students chew up part of a cracker, but do not swallow it. Hold it in the mouth for several minutes. Ask: What do you notice about the taste? (it will become sweet). What do you think the starch changed to?

Demonstrate that starch is broken down by saliva. Make a starch solution by adding a teaspoon of flour or cornstarch to about half a cup of water. Collect some saliva in another glass or cup. To one test tube, add about 2 tablespoons starch solution. To test tube #2, add 2 tablespoons starch solution and 2 tablespoons saliva. To all three tubes, add two or three drops of iodine. The two tubes containing starch will turn blue-purple. Ask: Why did the tube with only saliva not turn blue?

Let the tubes stand for several hours until the blue color in the saliva-starch-iodine mixture disappears. Ask: Why did the solution change color? Do you think that there is any starch present in the tube now? Why not? What has the starch been changed into?

NOTE: TINCTURE OF IODINE IS POISONOUS IF TAKEN INTERNALLY.

Students will be able to list which nutrients are absorbed in the stomach, in the small intestine, and in the large intestine by the bloodstream and circulated to all cells in the body.

Have a group of students gather information from library on absorption of food in stomach, small intestine and large intestine. Present information to class.

Students will be able to give two examples of metabolism using the nutrients that have been absorbed and carried to the cell.

Food substances combine with oxygen in the cells to give energy. The energy is used to keep our bodies functioning. Students can write a paper on what happens to glucose (carbohydrate end product) when in the cell.

Show that food burns and gives off heat energy by holding a piece of food over a candle or bunsen burner flame with tongs. Try several kinds of foods; note that high fat content foods (a peanut, a piece of bacon) burn longer than other foods (candy, bread).

Discuss: How is food energy measured? (calories) Does everybody need the same amount of calories? Does a person who is growing need more calories than a person who is not growing? Use filmstrip **How Food Becomes You** (Dairy Council) to show how food is used by the body.

A calorie is a unit of heat. It is defined as the amount of heat required to raise the temperature of one gram of water one degree centigrade.

Use booklet **How Your Body Uses Food** (Dairy Council). Describes the processes of digestion and metabolism.

Discuss: Do some kinds of cells keep reproducing at the rate necessary for growth, even when growth in height has stopped? (hair, fingernails)

Teaching Aids

1. Digestion is the process of breaking food down into small particles so that it can be used by the body. Large food particles cannot be used by the body without being broken down or changed into smaller particles. The parts and functions of the digestive system are:

Part	Function
Mouth & Esophagus	**Mechanical Digestion** — Biting and chewing, transporting food to stomach. **Secretory Digestion** — 1) enzymes in saliva break down starch; 2) mucous lubricates and binds food parts and allows food to pass through esophagus.

Stomach	**Mechanical Digestion** — Storing, mixing and slow, controlled emptying. **Secretory Digestion** — Enzymes are secreted to partially break down protein and to a lesser extent, fat.
Small Intestine	**Mechanical Digestion** — Food is passed along the intestine through contraction movements called peristalsis. **Secretory Digestion** — Enzymes are secreted which complete breakdown of fat, protein and carbohydrate. Serves as reservoir for undigestible material until defecation. Bacteria in colon synthesize vitamin K and some B vitamins.
Large Intestine	

2. After the food is broken down into small nutrients within the digestive system, the nutrients are absorbed into the bloodstream from the various parts as follows:

Part	Nutrients Absorbed into Bloodstream
Stomach	Small amount of water
Small Intestine	End products of fat, carbohydrate, and protein digestion
Large Intestine	Water and minerals; and vitamins synthesized in large intestine.

3. Examples of using the nutrients that have been absorbed and carried to the cell are:
   a. The cells of the body change nutrients into energy.
   b. The cells of the body change nutrients into building material for growth and to repair and replace damaged or old or worn out cells.

CONCEPT IV

Food habits have evolved from a complex of geographic, demographic, sociologic, ecologic, economic, religious and cultural factors.

BEHAVIORAL OBJECTIVE

Student will give an example of how each of the following factors affects our food habits:

a. **demographic**
b. **geographic**
c. **ecologic**
d. **economic**
e. **religious**
f. **cultural**

SUGGESTED ACTIVITIES

Choose a country and find out what kinds of foods its people eat. (This can be part of a social studies report in which the role of food could be treated broadly — i.e., the effect of the food supply on the political, economic, or social way of life of the country.)

Compare the foods eaten in two countries which are geographically close and in two countries which are far away from each other. In which case is there more similarity in the foods eaten? Why?

List foods eaten in the United States the Indians ate prior to the coming of the Europeans.

List foods eaten in the United States which were brought from other countries.

Discuss: Do all Americans eat the same foods? Why not? Are there any foods you think all Americans eat?

Have student examine his own eating pattern and compare it with others in his family and with his peers.

Identify foods that are more available and/or less expensive in summer than in winter.

Assign each student a foreign country or different part of the United States. **Pose the problem:** If he were to open a food store in that area, what would he sell? (A student might say he would not open a store in a given area because the people all grow their own food.)

Divide the class into several groups. Give each group newspaper grocery ads and a specified amount of pretend money. Each group is to "shop" with its money for one day's food for a family of four. Each group reports to the class what they "bought."

In a class where several ethnic backgrounds are represented, study several families to bring out similarities and differences.

With the cooperation of the school lunch supervisor, the class can **plan** a "United Nations Lunch" for which the class can research what people eat in several countries and plan lunch menus accordingly.

Discuss the influence of school lunch on students' food habits. Do students now eat any foods that they did not before meeting them in school lunch? Do they eat foods at school they don't eat at home?

Students can examine food advertisements and determine how many advertised products they actually eat. Do they think the ads influence them? Do the ads influence their mothers? What do the ads really tell you? How do they try to influence you?

Discuss the effect on a family's food habits of moving from one part of the country to another.

Small groups or individual students choose a religion and **report** on how it uses food in its rituals or how its rules affect the food intake of its adherents.

Students can **find** beliefs and superstitions about food in their own environment. Evaluate the beliefs. Are they true? Do they have any basis in fact? Do they do any harm?

Common examples:

— Fish is brain food

— Orange juice and milk should not be drunk together

— Garlic will make your blood pure

— Tomatoes cause cancer

— Honey will cure diseases

— Wheat germ gives vigor and vitality

The student will be able to evaluate one day's food intake of a person of different culture, using the Basic Four Food Groups as a guideline for adequacy in nutrients.

— Grapefruit burns fat

Have students refer to the one-day food records they kept at the beginning of the unit. Compare foods they eat with foods eaten in other countries.

Use the poster, **What Did You Have for Breakfast This Morning?** (NDC) with teacher's guide. An activity folder for students is available.

Have committees study milk-producing in other lands. Discuss milk products from around the world and different foods cooked with milk.

Play **Lingo** (U.S. Committee for UNICEF). The game helps students recognize foods by their names in English, French and Spanish.

Additional Activities: Fieldtrips: Bakery, restaurant that specializes in foreign food.

Teaching Aids

People usually do not think about what kind of food they eat. Eating is a habit — we become used to eating certain foods. But people in other parts of the world are used to eating other foods. These differences come about for many reasons:

Availability of food. A Chinese child eats rice because it is on the table at every meal and everyone else eats it.

Customs and beliefs about food. Sometimes people think a food is only for certain people, (coffee for adults or milk for children).

What we are used to eating. For instance, most of us would not like to eat insects. However, in some parts of the world, insects are food.

Economic factor. People can select foods from those they can afford to buy.

Preference. People select foods which fit into the pattern of what they like.

Man has developed beliefs about food and its power to influence life, and many religions incorporate food or rules about eating into their rituals and doctrine. Examples: **Hinduism** - forbids beef; **Islam** - forbids pork; **Judaism** - forbids eating pork and shellfish and meat and meat and milk together; **Christianity** - role of bread and wine.

CONCEPT V

Food has always been an important factor in the history of man.

BEHAVIORAL OBJECTIVE

Student will be able to list five factors involved in man's progression from being a food gatherer in pre-historic times to being a food producer in modern times and give examples of each.

SUGGESTED ACTIVITIES

Discuss: What weapons and other methods did primitive man devise to trap and kill animals to eat?

Discuss: What conditions had to exist before men could develop agriculture and produce food for themselves?

Show what types of grain are grown around the world on a world map. Have

students bring in as many different kinds of grain and bread as they can find. Identify each grain, the kind of food made from it, and the part of the world where it is grown and eaten.

Discuss: In what ways besides bread do we eat grains?

Discuss: What nutritional contributions do grains make to people's diets?

Read the booklet **Your Daily Bread and its Dramatic History** (American Institute of Baking).

Discuss: During the Middle Ages there was very little activity in science, music, art, or literature. Do you think the frequent famines during this period were connected in any way to this lack of scientific and cultural activity? Why or why not? Why were agricultural practices poor in the Middle Ages?

Discuss: If one man can produce enough food for twenty people instead of just for himself, what kinds of things can the other nineteen people do?

Hold a debate or write a report on the topic: "Civilization depends on man's ability to produce food efficiently."

Teaching Aids

Five factors involved in man's progression from food gatherer to food producer and a few examples of each are:

Tools — wheel, knife, plow, combine

Climate — Ice Age and resulting dry weather

Fertilizers — manure and decayed matter, modern synthetic fertilizers such as phosphates and nitrates

Genetics — development of hybrid seeds

Migration — movement from Tigris Euphrates River Valley where grains were first grown. Prehistoric man ate what fruits, vegetables and nuts he could find growing wild, and hunted for meat. He did not know how to store or produce food and devoted nearly all his time to finding food. He was frequently hungry.

The beginning of agriculture can be traced to the Near East at about 8000 B.C. after the Ice Age brought dry weather forcing people to live near lakes, rivers and the sea. Man became a **food producer** when he discovered that seeds dropped in the ground could yield a harvest several months later. The main crop was grain. Grain could be stored, enabling people to have food during the cold season.

During the Middle Ages hunger was common. Agricultural practices were poor, insects took their toll, wars were frequent and food was scarce. Many people starved.

Invention of machines such as the tractor, the reaper and the milking machine have increased the productivity of the farmer. Knowledge of soils, fertilizers and genetics have increased the amount a farmer can produce. One farmer produces food for many people.

CONCEPT I

Nutrition status is adequate nutrition, a dynamic state of the body which is affected by several factors and can be measured in the individual.

BEHAVIORAL OBJECTIVE

Seventh-Ninth Grade Levels

Students should be able to list the two contributions from foods needed to sustain life.

Students will be able to describe the three process steps in utilization of nutrients by the body.

Student will describe how a situation of deficient or excessive intake of food energy (calories) results in poor nutrition health.

Student will be able to list four of the five factors which affect individual variations for calorie needs.

Student will be able to describe a situation of nutrient deficiency of proteins, vitamins and minerals, and how this causes poor health and, if extreme, causes clinical disease.

Student will be able to explain how the nutritional status (nutrient reserves) of an individual safeguards the health of the individual if stress (emotional upset, famine, a growth spurt, pregnancy, illness or fever) occurs.

SUGGESTED ACTIVITIES

Use parts of the book **Food Becomes You,** by Ruth Leverton as a basis for review of the role of nutrition and health. Chapter I, II, and VIII provide a good introduction and overview.

Correlate this behavioral objective with bioscience studies, particularly with regard to experiments relating to digestion, absorption, and metabolism.

Additional information may be found in Encyclopedias, Chapter VIII of **Food Becomes You.**

The Daily Food Guide recommends eating a vitamin C source every day, and a vitamin A source only several times a week. Discuss the reasons for this difference in recommendation.

"Stress," in a biological sense, is any condition which imposes extra demands on the organism. It may be of either a physiological or psychological nature. Stress increases the need for many nutrients. Examples of stress include emotional upset, a growth spurt, pregnancy, illness, or fever. Would it make a difference to the health of a person subjected to a stressful situation whether he had previously been marginally nourished, or had been well nourished throughout his life? Why?

Which of the following would you consider to be nutritionally vulnerable groups of people? Why?
- Unborn children
- Infants
- School children
- Adolescents
- Adults
- Pregnant women

The dynamic balance of nutrients can be distorted through excess intake of nutrients, possibly causing illness. Students will be able to describe a situation of nutrient excess.

Have students discuss the idea: "If a little of something is good for you, it is not always true that a lot must be better."

Discuss: Are vitamin pills the same as drugs? How are they similar? How are they different? Should vitamin pills be treated the same way as drugs? If vitamin pills are present in the house, how should they be stored?

Student will be able to list and give examples of three of the four factors influencing an individual's nutritional status.

Hookworm parasites are a common problem in tropical areas. The infection causes internal blood loss. How would this affect the individual's needs for nutrients in order that he remain in good nutritional health (assuming it's not possible to rid him of the parasites)?

Invite a physician, a dietician or a public health nutritionist to talk to the class about diseases such as diabetes, phenylketonuria, hypertension and overweight, in which diet is a significant part of the treatment.

Student will be able to give a specific example of the interrelationship among nutrients.

Discuss what is meant by the term "a well-balanced diet." Is a balanced or adequate diet exactly the same for every individual?

Nutritional status can be measured. The student will give an example and explanation of how each of the following methods assesses nutritional status.

a. **Anthropometric**
b. **Biochemical**
c. **Dietary**
d. **Clinical signs**

Show and discuss SDH&ES slide series on clinical signs of malnutrition.

Ask the school nurse or a public health nurse to visit the class and demonstrate how hemoglobin determinations are made. Perhaps hemoglobin analysis can be done for the entire class. (The procedure is simple and rapid, and a few drops of blood from a fingerprick sample are sufficient.)

Have a nutritionist or dietician conduct a 24 hour dietary survey with the class.

The student will be able to describe a food guide in another country; compare and contrast that food guide with the U.S. basic four food guide; and evaluate in general terms the nutrient adequacy using the six general categories of nutrients.

Obtain a copy of the National Nutrition Survey, available from DHEW, Publication No. (HSH) 72-8134 or any other nutrition survey published in a nutrition journal or from U.S.D.A.; analyze the survey, identifying the nutritional assessment method used, and results of survey. Student may request surveys by mail or contact a local nutritionist or dietician or the state nutritionist.

Teaching Aids

1. Two contributions from foods needed to sustain life are: energy from calories given from food and nutrients found in food. It is impossible to be in good health without being adequately nourished. The body requires food energy and nutrients to carry on its vital functions; to build new cells for growth and repair, and to supply energy for physical activity.
2. Too little food energy for needs results in loss of body tissue, lassitude, a decreased metabolic rate, and eventually death if the deficit is severe enough. Too much food energy results in the deposition of body fat, and the associated health risks.
3. Individuals vary a good deal in their requirements for food energy. Body size, sex, rate of growth, physical activity, and individual metabolic rates affect calorie needs.
4. Nutritional deficiencies take time to develop, and since nutrition is a long-term affair it takes a chronic, consistent lack of a vital nutrient to produce illness. Teaching about nutrient functions will not be credible unless it puts deficiency diseases in perspective.

5. Malnutrition and disease work in a synergistic relationship. The malnourished individual is more susceptible to infection and less able to recover quickly; the disease may aggravate the malnutrition due to loss of appetite, impaired absorption, or cultural traditions of withholding food, or some types of food, from the diet of a sick person. Many diseases affect the absorption, utilization, or need for nutrients. Special diets are a great help in the treatment of some diseases.

6. Tissue samples are the most direct way of measuring nutritional status. Such techniques as liver biopsies and bone marrow sampling are informative, but cannot be used on a large population because they are difficult, costly, and uncomfortable to the subject. Blood sampling allows measurement of nutrients in transport in the body. Urine analyses usually measure either excess amounts of a nutrient or breakdown products of a nutrient.

7. **Application of Nutrition Surveys**
Nutrition surveys using clinical, biochemical, and dietary information to determine how well or poorly fed people are have been done in many countries of the world.

   In the United States, a survey of nutritional status was made during the late 1940's and 1950's. (Nutritional Status, USA).

   The survey, published in 1959, showed the U.S. population to be generally well nourished. The most common problems were overweight, and lower than desirable intakes of iron, calcium, vitamin C and vitamin A. The groups most likely to have lower than desirable nutrient intakes were teenagers (especially girls) and young women.

CONCEPT II

Criteria for assessing dietary adequacy exist and different nutritional education tools are used in various countries. Various ethnic foods in the U.S. can be incorporated into Basic Four Food Groups (U.S. Plan) to help people choose nutritionally adequate diets.

BEHAVIORAL OBJECTIVE

Within the six general categories of nutrients there are specific nutrients needed for the promotion of health and the prevention of disease. Recommendations for daily amounts of nutrients are called R.D.A. (Recommended Daily Allowance). The student will be able to state how the Recommended Dietary Allowances for nutrients are kept current with respect to new scientific knowledge and list two practical uses of the RDA's.

SUGGESTED ACTIVITIES

Why do you think the RDA's need to be revised periodically?

Investigate and write a short report on one nutrient to include how and why the need for the nutrient changes with various age groups, i.e., iron.

Discuss the nutrient labels on various food products such as breakfast cereal, i.e., how this is an aid to the consumer in food selection.

Have students examine labels of bread and cereal products to discover whether they are enriched or whole grain. Discover what types of bread and cereal products must be enriched by law.

Have a representative in the SDH&ES working with Food and Drug Administration present information on laws regarding nutrient labelling and ingredient labelling, and enrichments.

Secure a food composition table providing information on nutrient content of

The student will be able to describe five of the many common nutritional problems reported in studies of teenagers, nutritional status and eating habits, and list the three nutrients most commonly lacking in diets of teenagers.

The U.S. Guide (Basic Four Food Group) may need to be modified, in particular circumstances since the U.S. is far from homogeneous in terms of culture and food habits. The student will develop a one day's food plan for an ethnic group such as American Indian, Mexican American, Oriental American, or Black American, using the basic four food guide as a tool for assessing diet adequacy.

commonly used foods. Compare and contrast the various nutrient contents of common foods in each of the basic four food groups, determine what are the common nutrients found in each of the basic four food groups. Contact home economist or extension agent for food composition tables.

Prepare a graphic illustration comparing the various nutrient contents of different food items.

Have each student list all the fruits and vegetables he has eaten in the last 24 hours. Compile a list for the class, and find out how many different fruits and vegetables were eaten. List the vitamin C sources and the vitamin A sources separately.

Discuss: What protein sources might a vegetarian be able to rely on?

Divide the class into four groups and have each group select one of the four following countries, each of which has its own unique food guide: Burma, Thailand, Puerto Rico, and Guatemala. Have students study and report on food habits, patterns and selection, eventually utilizing the country's food guide as a resource.

Modify the Basic Four Food Groups to make it more meaningful to other ethnic groups.

Invite a community resource person to speak on ethnic food habits and patterns i.e., parent, cook in an ethnic restaurant, or foreign exchange student.

Teaching Aids

1. The **Recommended Dietary Allowances** are recommendations for daily amounts of nutrients for people in given age and sex groups in the United States. The six general categories of nutrients are protein, carbohydrate, fat, vitamins, minerals and water. Specific nutrient recommendations in these categories are higher than actual requirements to allow a margin of safety, and are revised every five years.
2. Foreign recipe books provide a good resource for ethnic foods. Home Economics, Social Studies, Anthropology, Geography or Language Arts teachers are excellent resource persons.

CONCEPT III

Nutritional concerns and nutritional problems of teenagers encompass eating habits, results of nutritional studies, acne, and athletic performance.

BEHAVIORAL OBJECTIVE

The student will be able to describe five of the many common nutritional problems reported in

SUGGESTED ACTIVITIES

Have student list aspects of teenagers' eating habits which draw criticism from adults. Ask several students to interview parents or other adults to ask specifically

studies of teenagers, nutritional status and eating habits, and list the three nutrients most commonly lacking in diets of teenagers.

what they think is wrong with the way teenagers eat. In class, discuss possible reasons for each criticism.

Review and analyze a study on the nutritional status and eating habits of teenagers (available from State Library files of dietetic or medical journals).

Discuss: Why is nutrition important during the teenage years? Some reasons include:
- — High nutrient needs due to rapid growth.
- — Need for positive good health to meet the demands of school and social life.
- — Teenagers will soon be the next generation of parents; their health will affect their children.
- — Food habits formed during the teen years may persist for a lifetime.

Discuss why some food in the morning is important.

Discuss reasons for skipping breakfast, and ways of making breakfast easier to eat, remembering that the menu needn't be traditional. Students might make their own "instant breakfast" from milk, a raw egg, and fruit juice or jam for flavoring. Compare this cost and the time to prepare an "instant breakfast," a commercial "instant breakfast," and a "traditional menu" of cereal, toast, juice, and milk. Also compare the dishes or utensils and equipment needed.

Have students keep a three-day food record. Using the records, carry out the following activities:
- — Each student evaluates his own food record on the basis of the recommended numbers of servings from the four food groups. Tabulate, for the class, which food groups were most often slighted. Tabulate separately for boys and girls.
- — After identifying the food groups most often slighted, identify the nutrients that would therefore be likely to be low. List foods which are good sources of these nutrients.
- — Use food records (possibly a randomly selected sample of anonymous records) for class discussion and suggestions for improvement. Remember that it is not essential that foods be eaten in structured meals or at usual times; evaluate **only** on the basis of nutritional adequacy.
- — Identify the practices which are most often associated with the best and the poorest diets in the class (in terms of meals, snacks, etc.).
- — If the records reflect a school lunch program, figure out what approximate percentage of the day's intake came from the school lunch. If some students participated in the school lunch program and others did not, compare the values of the lunches eaten by the two groups.

The student will be able to critically examine the common belief that specific food causes acne.

Invite a local community health nurse, dermatologist, or dietician to speak to the class and answer questions about skin problems of adolescents.

The student will be able to critically examine the common belief that a specific diet will enhance athletic performance.

Collect ideas or beliefs about the effects of food on physical performance. Discuss their value, physiologically and psychologically, to the athlete. Do any of these ideas do any harm?

Teaching Aids

1. Teenagers are often criticized for their eating habits in the following areas:

   Frequent low-nutrient snacks, skipping meals, fad dieting, unorthodox combinations of foods, and eating unusual foods at particular meals. Some of these practices (skipping meals, fad dieting) are actually harmful nutritionally. Others (snacks, for instance) may be of benefit from a nutritional point of view. Some practices (such as unorthodox combinations of foods) are neither harmful nor beneficial in themselves, but draw criticism simply because they represent a different way of doing things.

   The study **Nutritional Status USA** (published in 1959) showed teenagers, and especially teenage girls, to be the poorest fed members of the U.S. population. This study formed the basis for much of the concern over teenage diets that still exists.

   More recent studies of various teenage populations indicate the following general situations:
   - Most teenagers are well-nourished, healthy individuals.
   - Many teenagers are concerned about their weight (often girls want to lose, boys want to gain).
   - Snacking is common and in most cases is a benefit to the diet.
   - Diets are most often poor when less than three meals a day are eaten.
   - Girls, because they need fewer calories than boys, tend to have more trouble getting an adequate intake of nutrients.
   - The nutrients most often in short supply are iron and calcium, with the lack of vitamins C and A sometimes showing up as problems too.

2. Many teenagers avoid foods that they need and that do not necessarily aggravate acne conditions (most often milk) because the foods have acquired a reputation for contributing to skin problems. There is no evidence that any specific food will make the condition worse, except in specific cases where an individual is sensitive to a particular food.

   Acne basically is a disorder stemming from the rather sudden production of hormones and development of sebaceous glands during puberty. Oily skin and skin eruptions can be aggravated in some individuals by particular foods but the disorder is not caused or cured by any dietary practice.

3. An example of an undesirable nutrition practice is in the case of dieting to meet weight standards for wrestling weight classifications. Attempts to keep just under or just over an arbitrary weight for wrestling purposes can result in some bizarre and hazardous dietary manipulations. Purposeful dehydration should never be undertaken for this purpose.

CONCEPT IV

Growth and development during the adolescent period is influenced by individual variations in the normal growth pattern (i.e., developmental age as opposed to chronological age) and by nutrition.

BEHAVIORAL OBJECTIVE

The student will be able to list the three contributing factors to individual variation within

SUGGESTED ACTIVITIES

Figure out how heavy a student in the class would be now if he had kept up the same growth rate he had during the first year of life. If data are available from baby

the growth pattern and prepare an oral report on one of these factors.

books (they will be for some classes, but not for all), each student can use his own birthweight and weight at the age of one year to figure out his rate of growth, and what he would weigh now if he had kept up the rate. Or use a hypothetical 7 pound baby who weights 21 pounds on his first birthday.

Obtain Meredith growth charts (these are widely used by pediatricians and schools). Each student can plot his height and weight data on a chart. The Meredith chart shows the range of height and weight for 98 percent of normal individuals at a given age. It will be easy to see a student's individual relation to the wide range of normality in height and weight.

Obtain average height data on boys and girls separately from a class of 7th graders and from a class of 10th graders. Make a chart to compare the changes which occur over this period of time.

The student will be able to list and describe three of the four ways to determine developmental age.

Invite the physician or a local pediatrician to bring some x-ray pictures of developing bones and explain them to the class. The process of bone mineralization offers opportunity to discuss why older people's bones break more easily than younger ones; what nutrients are found in foods.

Obtain a long bone from an animal (a drumstick bone from a chicken or a turkey will do). Split the bone lengthwise and examine it closely. Note the spongy area near the end of the hollow center. This is where calcium is laid down as the bone is mineralized and new cells are formed in the spongy area. Note the epiphysis. Even in a mature bone, a line can be seen.

Student will be able to describe one example of the effects of improved nutrition on one generation versus another.

If a museum or historical display is available, compare the size of clothing then with the size of the average person today.

Students can determine whether their parents are taller than their grandparents. (Some will be, some won't.)

Speculate on some of the factors other than nutrition which may have affected the increased stature of Japanese Americans.

The student will be able to define what is meant by the following statement: "Both the quality and quantity of protein are essential for adequate growth" and give two examples of amino acid complementation.

Conduct an animal feeding experiment to show the necessity of complete proteins for growth. Use two pairs of weanling (3-week old) rats. Feed one pair an adequate diet with protein coming from meat and milk. Feed the other pair the same diet except with the protein coming from gelatin powder. (Gelatin is a protein which is poor quality. Gelatin lacks the essential amino acid tryptophan. When gelatin is the sole source of protein, the animals will not grow.)

The students should be responsible for caring for, feeding, weighing and observing the rats. Growth differences should be obvious in three to four weeks. Rehabilitate the rats fed gelatin by feeding them the other diet. If time permits, keep both pairs of rats on an adequate diet for a number of weeks, continuing to weigh them at intervals. Observe whether the rats fed the gelatin diet ever catch up to the others. (It's possible that they may, since the rat's most rapid growth period and hence greatest nutritional vulnerability is prior to weaning.)

Teaching Aids

1. Most girls experience the adolescent growth spurt about two years earlier than most boys. The average period of most rapid growth for girls is about age 10½ to 13, while for boys it is about age 12½ to 15. In spite of the fact that they experience the growth spurt later, boys grow more in height and weight during adolescence than girls do. Thus they end up as adults the larger and taller sex, on the average.

   Girls are ahead of boys in physical development from birth. Skeletal development is more advanced in girls than in boys at birth.

2. Four ways to determine developmental age are: skeletal, dental, sexual and morphological. Developmental age is not necessarily the same as chronological age. Each person grows and matures according to his own inherited pattern. At any given age, different individuals will be at different states of development.

   Skeletal age can be assessed by the physician's evaluation of x-ray pictures of certain bones. Several changes occur in the bones as the person grows and matures. The bones mineralize, or deposit calcium within the protein framework of the bone. This creates dense, hard "ossification centers" which show up opaque on an x-ray. The number and size of ossification centers is an indicator of skeletal development.

   Dental Age may be assessed by noting the number of temporary and/or permanent teeth which have erupted. This method of assessing developmental age has value mostly for young children, since teenagers usually have all their permanent teeth. (Wisdom teeth are so unpredictable as to be useless for this purpose.)

   Sexual Age can be assessed by the physician noting the appearance of secondary sex characteristics.

   Morphological age is based on the fact that as the person grows and matures the proportional size of different parts of the body changes. For the newborn, the head is about one-fourth of the total length while for the adult the head is only about one-eighth the total height. These changes occur because different parts of the body grow at different times. The head and brain do most of their growing during prenatal life and infancy. The reproductive organs grow rapidly during adolescence. The legs also grow a great deal in length during adolescence. All these changes add up to a change in proportion and shape as a person grows up.

3. People today are growing taller at younger ages than they did in previous generations. There is reason to believe that this is at least in part due to improved nutrition.

   Studies of Japanese Americans indicate that on the average, first generation Japanese Americans are taller than their parents who grew up in Japan twenty or more years before. Improved nutrition may be at least partially responsible.

   Young people are maturing sexually at an earlier age than they did several generations ago. In Western countries, in the last 200 years, the average age of menarche has gone from age 17 to age 12½. The same trend is beginning to show in eastern countries as general health improves.

4. Proteins are made up of molecules called amino acids, of which several are essential to humans. A "complete" protein contains all the essential amino acids in approximately the correct ratios to be utilized by the body. Most animal proteins (milk, eggs, meat, fish, poultry) are "complete."

   "Incomplete" proteins lack one or more essential amino acids, and are characteristic of proteins found in many grains, vegetables, etc. An incomplete protein by itself will not support growth.

   When two types of incomplete proteins are consumed together, a complementary effect of the two amino acid patterns may result — giving the nutrition equivalent of a complete protein.

CONCEPT V

Achieving and maintaining a desirable weight zone is a fundamental component of individual health.

BEHAVIORAL OBJECTIVE

The student will be able to describe the three factors which affect body weight.

SUGGESTED ACTIVITIES

Discuss: What is a calorie? Find out the technical definition of a calorie. Look up the term "calorimeter" in an encyclopedia to find out the method used by scientists to measure the amount of calories contained in a food.

Compare the caloric intakes of all the students in the class. Note the high and low intakes. Average the girls' intakes separately from the boys'. Which were larger on the average? Why? Relate students' individual caloric needs to their circumstances of size, growth rate, physical activity.

Students can keep track of how they spend their time for one 24-hour period. Classify activity as sleep, resting, light activity, moderate activity, strenuous activity. Then figure out how many hours were spent in each category, and what percentage of the day was spent:
Sleeping.
Resting: lying awake, watching television, sitting in class, reading.
Light Activity: typing, eating, dressing, driving, writing.
Moderate Activity: housework, walking, washing the car.
Strenuous Activity: running, swimming, climbing stairs, and strenuous sports such as soccer, basketball, riding a bicycle.

Have students prepare anonymous chart cards of their weight, their sitting height, the length of their arms, the circumference of shoulders and hips. The cards can then be sorted on the basis of a single common characteristic and the other characteristics compared and graphed.

Age_____ Sex _____

Weight_____ Height _____

Sitting Height _____

Length of Arm _____

Length of Leg _____

The student will be able to explain the difference between weight and fatness, and state one method of evaluating weight status.

Discuss why a football athlete can be overweight, yet not fat.

Have students cite an example in which a person who is within the desirable weight zone may be considered fat.

Student will be able to cite two examples of the physical, social, cultural and emotional implications of obesity.

The student will be able to list various steps which should be taken in a weight reduction plan.

Obtain some of the height-weight tables in use currently for adults, and study them. Especially try to analyze them for their limitations. (For instance, those from insurance companies are based on only insured individuals; methods of taking measurements vary; in some tables different categories are given for light, medium, and heavy frames, but no way is given to determine which you have.)

Discuss literary figures who were obese and the effect of their obesity on their interaction with people and their life styles.

Cite instances in which the obese person is discriminated against in the job market.

Have students research information about current percentages of obesity in the statistical age breakdowns in this county and compare in class.

Take one of the more well known fad diets, or, even better, the popular diet going around school at the moment, and analyze it for nutritional adequacy. It should meet the recommendations of the Basic Four Food Groups for teenagers to be considered nutritionally adequate.

Discuss the reasons why fad diets are popular and the reasons why they often fail.

Invite the public health nurse or local dietician to present a coordinated program on the aspects of a sensible weight reduction plan.

Invite the local Weight Watchers or TOPS President to explain their program.

Have the students do surveys of local stores listing various books on weight reduction, and various gums, beverages, candy and packaged foods which advertise their weight reduction capabilities.

Teaching Aids

1. We can change fatness by changing our eating and exercise patterns. We can't change body build. Some people may always be "overweight or underweight" by the charts because of their bone structure, even if they are not too fat or too thin.

   At all ages, fat makes up a larger proportion of girls' bodies than it does boys'. Also, as the adult grows older, active lean tissue is gradually replaced by fatty tissue even if weight remains constant.

2. It is well known that, in the adult, obesity is associated with increased risk from several diseases (including cardiovascular disease) with a lower life expectancy than the person of normal weight.

Obesity is regarded as a risk factor when surgery is indicated.

For adolescents, it is important to distinguish between "transient obesity" and the long-standing, more serious type. It is very common for adolescents to experience a time of relative chubbiness just prior to the adolescent growth spurt. Once the growth spurt begins, the excess fat disappears, usually in a few months. But for the person who has been fat since childhood the adolescent growth spurt probably won't cure the condition. This type of "always been fat" obesity is serious because it is the hardest kind to combat.

CONCEPT VI

Environmental factors affect nutritional health by influencing what foods are available, the quality of those foods, and what foods the individual chooses to eat.

BEHAVIORAL OBJECTIVE

The student should be able to explain and give five specific examples of how technology affects the foods available to people and the nutritional quality of those foods.

The student will be able to define how income affects the individual's food supply and will list five community sources where an individual may receive assistance in obtaining an adequate food supply.

SUGGESTED ACTIVITIES

From a day's food intake, figure out how many food items would have to be eliminated if we had to depend only on locally produced, seasonal foods.

Invite a local food retailer to discuss the procedures involved in marketing fresh produce. He can point out the diversity of sources and the supply and price of various items.

Discuss the effect of school lunch on the day's food intake. If your school has a school lunch program, find out what the participation is. Find out what alternatives are available for eating lunch, and discuss whether the alternatives tend to provide as adequate lunch as the school lunch program.

If participation in school lunch is relatively low, the class can undertake to find out why and to recommend measures to be taken to increase participation.

Discuss the effect of vending machines on American food habits. The class can take a survey of the places in the community where vending machines exist. The survey should note the type of vending machines and the people served. From this information the class may be able to draw some tentative conclusions about possible effects of the vending machines on nutrition. In the specific instances found do the vending machines tend to provide nutritious food where it would not otherwise be available? Or do they tend to make foods easily available which contribute nothing but calories, while their quick service may entice people to use them instead of an alternative food source?

Review the Type A School Lunch and compare and contrast the school lunches served for one week with the Type A requirement.

Give the class several different hypothetical sums of money, on which to plan a day's food for themselves. The sums of money should range from liberal to **very** limited. Compare different student solutions to the problem. Determine whether nutritionally adequate diets were more difficult to plan on the very limited money. Also notice whether any particularly better choices were made when plenty of money was available.

Invite a local county welfare spokesman to discuss various programs which provide foods to individuals lacking financial resources.

Have several students interview a local health person as to the availability of a food distribution program coordinated with a health care program.

Invite a county extension agent to speak about the various programs she or he conducts to help people make the best use of their financial resources particularly relating to food.

Visit a local Senior Citizens Center which has a program providing a nutritionally adequate lunch in a socially stimulating setting. You may wish to check about the possibility of the children eating with these older Americans.

The student will be able to give five specific examples of how government regulations affect the quality of food available, and three examples of how these regulations are enforced in Montana.

Students can check labels of products such as grits, spaghetti, macaroni, and rice that are used in their home to see whether they are enriched.

Discuss: Do you think it should be mandatory to enrich all flour and grain products?

Invite the State Food and Drug Administration representative to discuss laws regarding food labels, food names, standards of identities and nutrient labeling. A State Sanitarian may also be able to do this.

Investigate the State laws covering enrichment and fortification of flour and iodized salt. Available from SDH&ES, Environmental Sciences Division.

Check to see whether the salt served in the school cafeteria is iodized.

Trace the history of the Food and Drug Administration, beginning with the passage of the Pure Food and Drug Law enacted in 1938. Information may be found in encyplopedias or in the article "The Food and Drug Administration," page 290 in the Yearbook of Agriculture 1966: Protecting Our Food. This Agriculture Yearbook also contains numerous other articles relative to food protection.

Invite a sanitarian from your city or county health department to come and speak to the class about the regulations which govern the cleanliness of public eating places and the health and practices of food handlers.

The student will be able to cite five examples of how advertising propaganda affect our food selection, and cite five examples of foods, evaluating the validity of their nutritional claims.

Students can collect food advertisements from newspapers and magazines and those they see on television for a few days.

Have one or more students visit the county extension office to seek current literature on food fads.

Ask the Home Ec teacher to assist the class in preparing a display and developing a program on food fads for possible presentation to community groups.

Invite a representative from the Health Food Store to talk about the nutritional claims of their products.

The student will be able to cite three examples of how political factors can affect the nutritional health of people.

Gather information and discuss the effect of current political conflict on the nutritional health of the people involved.

Review the history of food rationing and "victory gardens" in the United States during World War II. These represented attempts by a government to insure nutritional adequacy in the face of possible shortages.

Discuss the current interest in the United States Congress in hunger and malnutrition among poor people in the U.S. Do you think that the concern now being expressed will result in benefits for the people who are malnourished?

Find out what the local situation is with regard to fluoridation of water. If your community's water supply is fluoridated, find out how recently the practice was begun and, if you can, events leading up to the decision to add fluoride to the water. If your community does not have fluoridated water, find out whether it has been a political issue recently and the history of the issue in your community. Analyze the arguments for and against fluoridation. Do the arguments against have a tinge of the food faddist?

Teaching Aids

1. In order to qualify for federal school lunch funds by participation in the National School Lunch Program, a school must serve meals meeting established nutritional requirements. To qualify as a "Type A Lunch," a lunch must include:

   a. 8 ounces of fluid whole milk

   b. A protein-rich food: 2 oz. of cooked or canned lean meat, fish or poultry; or 2 oz. of cheese, or 1 egg, or ½ cup cooked dried beans or peas; or 4 tablespoons of peanut butter; or an equivalent combination of these foods.

   c. Vegetables and fruits: two or more to equal ¾ cup total. Undiluted juice can be used as the equivalent of ¼ cup of the total. The inclusion of an ascorbic acid source daily and vitamin A food on alternate days is recommended.

   d. Bread or a bread substitute: either whole grain or enriched, one slice or its equivalent.

   e. Butter or fortified margarine: one teaspoon used as a spread or in preparation of other foods.

   If schools participate in the National School Lunch Program, they must provide lunches free or at reduced prices for needy children. U.S. Department of Agriculture regulations issued in October 1968 require that local school authorities develop and publicly announce their policy for determining which children are eligible to receive free or reduced-price meals. The food service programs must be operated in such a way that children receiving free or reduced price meals cannot be identified or singled out in any way.

2. Government regulations affect the quality of foods available. The nutritional quality of some food is regulated by law.

   Enrichment of while bread and flour is mandatory in most states. During the milling process used in making white flour, much of the iron and B vitamins which are contained in the whole grain are lost. Enrichment restores these nutrients.

   Fortification of some foods helps supply nutrients that would otherwise be difficult to obtain. Fortification differs from enrichment in that fortification means adding a nutrient that was not originally present in the food or that was not present in the amounts added.

   Examples of fortified foods are vitamin D milk, iodized salt and vitamin A fortified margarine.

   Standards for both enrichment and fortification are established setting minimum and maximum limits for the nutrients to be added. This avoids the possibility of consuming too much of a nutrient.

3. Nutritional quackery cheats people. At its worst, it can be very dangerous. Several agencies and organizations attempt to curtail the activities of nutritional quacks. These include the American Medical Association, the Better Business Bureau, the Food and Drug Administration and State and Local Health Departments.

   Under the protection of the First Amendment, a person may write anything he chooses and sell it in a book. Thus there is no legal grounds for action against many writers of faddist nutrition books. If, however, the publication is sold with and used to promote a **product** which is fraudulent, it can be seized. For example, the best-selling book **Calories Don't Count** was seized and the author prosecuted only when the book was sold with a product — in this case safflower oil capsules, useless for the purpose for which they were promoted.

CONCEPT I

Widespread malnutrition in the developing areas of the world interacts with disease and other factors to produce short life expectancies and poor general health for millions of people. The existence of plenty of food in the U.S. does not assure the nutritional health of all people since malnutrition of vulnerable groups does exist.

BEHAVIORAL OBJECTIVE

Tenth-Twelfth Grade Levels

The student will be able to identify five factors responsible for malnutrition in the developing nations and explain their interrelationships.

SUGGESTED ACTIVITIES

Discuss the role of modern communication in making us aware of nutrition problems in the rest of the world.

The need for food is very basic. Only when men do not have to spend all their time and energy procuring adequate food do they have the resources to devote to other pursuits. Discuss the effects that insufficient food and malnutrition may have on the economic and social development of a country.

Students can collect and report on news clippings about nutrition problems in developing countries.

Discuss: The technological know how developed in western countries in the last hundred years or so has been applied unevenly in developing countries. Medical and health programs have decreased death rates, but agriculture, food production and marketing, and education have not caught up. The result is an imbalance between the population and its ability to meet its own needs.

Hold a debate on the population theories of Malthus (Essay on the Principle of Population, 1798; Second Essay, 1803). For a critical analysis of Malthusian Theory, see the booklet: **Are There Too Many People?** by Alva Myrdal and Paul Vincent (UNESCO). Contact Social Studies teacher.

The class can suppose that it is a Ministry of Health, Education and Welfare for a developing nation whose birth rate is high, death rate declining, and food supply relatively inadequate. This Ministry must formulate a "population policy" and decide how it will be implemented. (In order to do this, the class will have to decide certain facts about the country, such as its degree of urbanization, the predominant religion, its agricultural and sea resources.)

List all the items which the class can think of that are **potential** food but are not thought of as food in this culture. Such a list might include insects, snakes, blood, meat from horses, dogs and cats. Then list foods which are eaten in the U.S. which are not regarded as food in some other parts of the world. Examples are beef (definitely not food for the Hindu), pork (unacceptable as food for the orthodox Jew and for the Moslem), and yellow corn (regarded by some people as food for animals, inappropriate for human consumption).

List and discuss food habits which serve primarily social goals rather than biological ones, (one example in United States culture is the coffee break — coffee provides little if any food value, but does provide an opportunity for expressing hospitality, socializing, taking a "break" from work).

The student will be able to list and describe three kinds of malnutrition prevalent in children of the developing countries.

Discuss **Child Nutrition In Developing Countries** by D.B. Jelliffe, M.D. (U.S. Public Health Service). This handbook is used as a reference for Peace Corps workers and others who will be working in developing countries.

Have students choose one or two countries and investigate specific feeding practices relating to young children, through library research.

Discuss the film HUNGRY ANGELS available from SDH&ES.

Discuss possible ways of preventing protein-calorie malnutrition in children. Research information on high-protein foods specifically for child feeding, education to enable families to space their children farther apart, and supplemental feeding programs for young children.

The student will be able to identify five international agencies involved in attempting to solve world problems of hunger and malnutrition and give two examples of the activities of each agency.

Have students write to some of the U.N. specialized agencies such as UNESCO, FAO, WHO, and UNICEF for information and materials on their current programs in food nutrition and give oral reports.

Have students visit their clergy to inquire about food and nutrition programs which their denominations sponsor. Discuss the various programs in class.

Have students write to Project HOPE, Project CONCERN, or MEDICO or other philanthropic programs to secure information about their programs and report to the class.

The student will be able to list and explain four factors involved in the solving of world hunger and malnutrition problems.

Find out about the role of U.S. grain surpluses in helping India to weather the crisis of crop shortages in 1966-67. Discuss the 1973 wheat sales to Russia. Encyclopedia yearbook for these years should supply the information (contact Social Studies teacher).

Discuss the political implications of distributing surpluses from one nation to another. Do you think that use of surpluses is a practical long-term measure for fighting hunger and malnutrition?

In areas where the extravagance of growing livestock on limited land resources cannot be tolerated, what kinds of animal protein can be obtained which do not compete directly for "original calories?" (Fish, and in some cases, poultry and small animals feed on scraps.)

List some of the obstacles to improving agricultural productivity on a massive scale. (The need for large capital investment, lack of modern communications, and transportation, traditional systems of land use are examples.)

Individuals or small groups in the class can investigate and report on one possible new food product from the following list:

- Fish protein concentrate
- Improved genetic quality of existing grains
- Yeast
- Oilseed flours (cottonseed, peanut, soy flours) Special blends of oil-seed flours and other substances including vitamins and minerals have been tried for child feeding in some areas — Incaparina in Central and South America, Multipurpose Food — MPF — in India, Laubina in the near East.
- Soy protein meat analogs
- Algae

The student will be able to cite and give the results of three nutrition surveys conducted in the U.S., and explain four programs available to improve the nutritional status of Americans.

Discuss this ancient proverb: "If you give a man a fish, you feed him for a day. Teach him to fish, and you feed him for a lifetime."

Contact the State Library for copies of nutritional surveys conducted in the U.S.; i.e., dietetic and medical journals, and report on survey conclusions. The Ten State National Nutrition Survey should be specifically requested.

Invite a nutritionist from the local health department to discuss recent nutrition surveys in the U.S.

Write to Senator George McGovern for a list of free publications available on proceedings of Senate Select Committee on Nutrition and Human Needs for issues on nutrition problems in the U.S.

Discuss: Even among families in the Ten State National Nutrition Survey with high incomes (over $10,000), many did not have "good" diets and some had "poor" diets. Why don't families who have enough money always choose an adequate diet? What, besides money, is necessary in order to assure an adequate diet?

Invite a spokesperson from a local Woman, Infants and Children food program (WIC), if program exists. Find out which type of food assistance program operates currently in your county.

Invite a representative of the local Department of Social Services or Department of Health or the County Extension Home Economist to speak to the class about the local program.

Hold a debate on the subject:
What form of food assistance would be of most help to low income Americans?
— The Food Stamp Plan, or a modification thereof,
— a guaranteed annual income with no government food programs.

Debate: Should the government provide free school lunches in public schools? Why and why not?

Teaching Aids

1. The most crucial nutritional problem in the developing countries is that of protein-calorie malnutrition in young children.

   After the young child is weaned from the breast, he is often not fed the full complement of foods available to the family because it is believed that not all foods are good for young children. Often the young child receives primarily cereals and gruels even if the rest of the family has access to some protein foods and vegetables.

2. International agencies became concerned with nutrition and food after World War II, when many countries were severely damaged in terms of food supply and agriculture. The United Nations Relief and Rehabilitation Administration (UNRRA) was established in 1946 by 44 member governments, and it helped surmount the crisis in 17 nations ravaged by the war. UNRRA organized shipments of surplus products (mostly wheat) and attacked agricultural problems. UNRRA has been since replaced by other UN agencies with more long-term goals and programs.

   Various agencies of the United Nations have responsibility for helping to solve nutrition problems. The principle ones are FAO (Food and Agriculture Organization), WHO (World Health Organization), UNICEF

(United Nations International Childrens Emergency Fund), and UNESCO (United Nations Economic, Social, and Cultural Organization).

Other agencies also provide resources to fight malnutrition. Among these are AID, CARE, INCAP (Institute for Nutrition for Central America and Panama), and various church relief organizations.

3. It is difficult to document the real extent of hunger and malnutrition in the U.S., but recent events have made it clear that they do exist.

   It is well documented that disadvantaged Americans — those with low incomes, especially Blacks, Indians on reservations, and other minority groups — are at a substantial disadvantage in terms of general health.

   In the summer of 1964 a team was sent to Mississippi by the Field Foundation; they reported to a Senate Subcommittee on Manpower, Employment and Poverty in 1967. These reports of extreme malnutrition shocked the nation into awareness and spurred further investigation.

   Congress authorized the U.S. Public Health Service to conduct a National Nutrition Survey to survey the nutritional status of Americans living in low-income areas.

   The National Nutrition Survey begun in June 1968 was an attempt to find out just how serious the problem is. Conducted by the U.S. Public Health Service the survey measured nutritional status among a random sample of Americans living in low-income areas of ten states. Clinical, anthropometric (height, weight and other body measurements), biochemical and dietary data were collected.

   The nutrients most often found to be low in the survey were iron and calcium.

   Income of the family was shown to be related to the adequacy of the diet. More low-income families had "poor" diets than did families with higher incomes.

4. **Family Food Assistance Programs**

   Federal programs are in operation to make more food available to people with limited income: the Food Stamp Program and the WIC Program (Women, Infants and Children).

   Any county may apply to have one of the food programs. In the past, counties have borne at least part of the cost of distributing food and administering the programs.

   The Food Stamp Program is based on the assumption that it is better to help poor people buy food in regular grocery stores than it is to give them food directly.

   The Food Stamp Program has several limitations:
   - It is difficult for many families to make the cash outlay for food stamps monthly or twice-monthly.
   - Families must participate continuously; i.e., if they drop out for more than three months, they must reapply to participate.
   - People may feel embarrassed at using the stamps in the store.

5. **Department of Health Nutrition Services**

   State and local health departments provide ongoing nutrition education program in clinics and through public health nurses in local communities.

   The SDH&ES (Nutrition Unit) coordinates a special supplemental feeding program for women, infants and children (WIC). Foods high in nutrients often lacking in the diets of low income populations are provided to low income individuals. WIC is a nutrition program complemented with health care.

CONCEPT II

Many factors contribute to the increasing incidence of obesity in the U.S. and to its increase in health risks.

BEHAVIORAL OBJECTIVE

The student will be able to list and explain three factors which contribute to obesity.

SUGGESTED ACTIVITIES

Have each student select and determine the accuracy of a recent article on obesity found in a popular magazine.

List some other factors besides physiological need that influence the amount of food we eat.

Discuss the developments which contribute to a sedentary life for many Americans.

Students can keep track of the time they spend in a day performing actual physical exercise. Have students think of ways they could increase the amount of energy expended in exercise.

Students can demonstrate the increased load on the cardiovascular system that the obesity imposes. Have a student of normal weight engage in controlled exercise. (Stepping on and off a box or chair for a specified number of times will work.) Measure his pulse rate before and immediately after his exercise period. Allow him to rest until his pulse returns to normal. Then have him repeat the exercise holding a 20 pound weight, or better still wearing a jacket or vest that is weighted. Again measure his pulse rate. Did his heart have to work harder with the extra poundage?

Discuss the case of the underweight individual. Does he have some of the same problems as the obese person?

Have the class list foods which they think have a "low calorie" or a "high calorie" image. Then, using a table of caloric values, determine which foods are really high in calories.

One pound of body fat is roughly equivalent to 3,500 calories. The class can figure out how long it would take at various levels of restriction to lose given amounts of fatty tissue.

Have the class find some fad diets and analyze their approaches. Do they play on the reducer's desire for instant weight loss? Are the claims of the author consistent with the mathematical possibilities?

Discuss the common problem of weight gain while trying to stop smoking. Would it be wise for an already overweight person to stop smoking and try to reduce at the same time?

Have students analyze one of the fad diets for nutritional adequacy, using the four food groups as a standard.

Teaching Aids

1. The reported incidence of obesity in the American population varies depending upon the standards used, but there is general agreement that the incidence of obesity increases with age.

   Selective Service data indicate that the weight of draftees for any given height and age has increased over the past 50 years. Civilian studies show similar trends.

   Data do not exist to indicate an exact figure for incidence of obesity. Studies of teenagers report that between 10 and 35 percent of adolescents are obese.

   Obese individuals run greater than average risks of developing coronary heart disease, hypertension and diabetes. They also face increased risks in pregnancy and surgery. In general, the greater the degree of obesity, the greater the risk.

   Only recently have scientists realized that heredity differences dictate that some people will always have more trouble controlling weight than others. It is not accurate or fair to blame every case of obesity on lack of will power.

2. Appetite controlling mechanisms have been identified and located in the brains of animals. When the center controlling satiety is destroyed, the animal eats voraciously and becomes obese. It is reasonable to assume that a similar center exists in humans, but we do not yet know what factors it responds to in regulating hunger and satiety.

CONCEPT III

During prenatal life and infancy nutritional status is a major element in the foundation of the health of the mother and infant and includes nutrition practices during the preconception, conception, and infant periods of life.

BEHAVIORAL OBJECTIVE

The student will be able to explain the high nutritional needs during fetal life and infancy relating specifically to the rate of growth.

SUGGESTED ACTIVITIES

Have students plot a growth rate curve for prenatal life and infancy using the following data:

— First month of pregnancy: embryo increase its weight 10,000 times.

— Last month of pregnancy: fetus increases its weight 0.3 times.

— First year after birth: baby usually triples its weight.

If possible, plan this unit to coincide in time with the study of cell division and growth in biology.

Have each student graphically present the developmental stages of the human embryo and fetus and relate the suggested diet for pregnancy regarding increased nutrient need to the trimester development.

Have students conduct an animal experiment to observe the growth of newborn rats and the decreasing rate of growth as they get older. Information on obtaining and caring for experimental animals may be found in the booklet **Animal Feeding**

The student will be able to explain what is meant by each of the following:

- **vulnerability to nutritional injury**
- **decreased risk of prematurity**
- **dependence of fetus on maternal nutrient intake**
- **building of fetal nutrient reserves**
- **importance of food habits prior to pregnancy, focusing on the teenage years**

and how each relates to the nutrition and health status of the mother and developing fetus.

The student will be able to explain the nutrient and caloric needs during pregnancy using each of the following principles in the Policy Statement on Nutrition and Pregnancy of the American College of Obstetricians and Gynecologists:

- **Adequate intake of protein, particularly protein from animal sources**
- **Caloric intake approximately 10 percent above non-pregnant requirements**
- **Weight gain during pregnancy should not be restricted unduly, nor should weight reduction normally be attempted.**
- **Essential nutritional elements (such as sodium) should not be restricted during normal pregnancy.**
- **Dietary supplements of iron and iron-containing foods are indicated during pregnancy. Other dietary supplements, such as vitamins or additional sources, may be helpful where deficiencies in nutritional status are determined.**

The student will be able to list and describe the various alternatives in infant feeding and evaluate the nutritional adequacy and other advantages of each.

Demonstrations For The Classroom (National Dairy Council). Obtain two pregnant rats from an animal supply house, and two nonpregnant adult female rats as controls.

Show and discuss a film on human reproduction available from SDH&ES. Contact the biology teacher, local school nurse, home ec teacher or nutritionist to relate these phenomena directly to nutrition.

Write to National Foundation of the March of Dimes, Great Falls, MT for materials on prevention of birth defects and discuss these materials in class.

List the functions that the placenta performs for the fetus. What organs in the newborn baby must take over these functions at birth?

Have students investigate the statistics on birth rate trends nationally and in their community. Especially note the proportion of births to mothers who are teenagers. The city or county health department is a good source for local information; the library should provide information on national trends.

Compare the recommendation of the Basic Four Food Groups in terms of the kinds and amounts of foods suggested for the pregnant and non-pregnant woman.

Secure a copy of **Maternal Nutrition and the Cause of Pregnancy** from the State Nutritionist (SDH&ES) and review and discuss the scientific evidence leading to this policy statement by the American College of Obstetricians and Gynecologists.

Invite a local obstetrician to speak to the class about the importance of nutrition during pregnancy and during the years preceding pregnancy.

Invite a young mother and her baby to discuss prenatal nutrition with the class. If it is possible, find a mother who is also a nurse, a dietitian or a nutritionist.

Secure a copy of Maternal Nutrition and the Cause of Pregnancy from the State Nutritionist (SDH&ES) and review and discuss the scientific evidence leading to the policy statement by the American College of Obstetricians and Gynecologists.

Secure a comparison of nutrient composition of breast milk and commercially prepared formula and evaporated milk prepared formula. Contact home ec teacher or school nurse or local dietitian or nutritionist to assist in this activity.

Invite a local pediatrician, dietitian, nutritionist or nurse who favors breast feeding over bottle feeding and discuss the merits of breast feeding.

The student will be able to list foods in addition to milk needed by the infant in the first year of life and explain the need for each.

Invite a representative from a pharmaceutical company selling infant formulas and discuss the advantages and nutritional adequacy of commercially prepared formula. Contact your local pharmacist for the name of the representative.

Have the home ec teacher demonstrate formula preparation using both commerically prepared formulas and evaporated milk.

Invite a local pediatrician, public health nurse or nutritionist to discuss the need for Vitamins C and D and to discuss the recommended schedule for the introduction of solid foods, and reasons for particular foods.

Discuss: In many areas of the world, (and in the U.S. up until about 1920) babies are seldom offered much solid food during the first year of life.

In the United States, however, babies are usually introduced to a variety of solid (strained) foods early in life — before they actually need them nutritionally. Discuss how the early addition of solid foods may lead to infant obesity.

Students can survey a local supermarket and list all the different kinds of baby foods which are available. Compare the costs of such foods with those of regular foods mashed fine for the baby.

From the above survey, count the number of desserts offered for sale. Read the labels for ingredients. Discuss: Are all the foods offered for sale for babies suitable food for them?

Teaching Aids

1. Because of the rapid growth and development of the fetus and infant, this period of life is one of great vulnerability to nutritional injury. Any organism is most vulnerable at the time it is growing rapidly.

   Growing occurs by two means: cell division and cell enlargement. During the most rapid phase of growth, cell division is taking place. After that, growth occurs mainly by cell enlargement. It is thought that the process of cell division is most vulnerable to nutritional deficiency.

   The risk of prematurity, the greatest cause of deaths in very young infants, is less when the mother is in good health, including good nutritional health.

2. The fetus builds up stores of some nutrients before birth. One example is iron. The normal full-term baby is born with enough iron stored in his liver to last several months. (This is a good thing, since milk — his only food for a while — is not a good source of iron.) Another example is the fat stored by the fetus in the last weeks of pregnancy, which is important for the infant's ability to regulate body temperature after he is born.

3. Milk is the food especially suited to the nutritional needs of the young of all mammals — with humans no exception. Breast milk is ideal for the human infant, but in cases where the mother cannot or does not want to breast feed her infant, formulas based on cow's milk can supply the needs of the infant adequately.

   The mother's nutrient needs are greatly increased while she is breast feeding. She has a greater need for calories and some other nutrients than she did while pregnant. Nursing mothers need a liberal diet high in meat, fruits and vegetables, milk and cereals.

CONCEPT IV

An expanding frontier in nutrition involves man's survival in space and the integration of new scientific discoveries into living on earth.

BEHAVIORAL OBJECTIVE

The student will be able to list five criteria which must be met for food to be used in space and give three examples of food which meet these criteria.

SUGGESTED ACTIVITIES

Secure and discuss the article, "Living in Space" in **Nutrition Today** (Available from Nutrition Today, Inc., 101 Ridgely Avenue, P.O. Box 456, Annapolis, MD 21404.)

Secure and discuss the article "Dinner on the Moon" by Malcolm Smith and Charles A. Berry. **Nutrition Today** 4: 37 (Autumn 1969). This excellent article describes in detail the problems of feeding astronauts. Have the class compare the food described with that described in the 1967 article.

Additional information on space foods might be obtained by writing to:
U.S. Army Quartermaster Corps
Natick Laboratory
Natick, Massachusetts

If a manned space flight takes place during the semester have students collect and discuss television and newspaper references to the foods that the astronauts are eating.

Teaching Aids

1. The foods used in the Mercury, Gemini and early Apollo missions consisted mostly of compressed, ready-to-eat cubes of meat, fruit, dessert and bread. The bite-sized cubes were coated to prevent crumbs which might float about in the cabin. Other foods were dried and packed in plastic bags with one-way valves to put in hot or cold water to rehydrate the food just before eating. The food and beverage was then sucked from the container through a tube.
2. Beginning with Apollo VIII, astronauts began to have more "normal" food, including food packages containing food to be eaten with a spoon. There was not, as feared earlier, trouble with solid and liquid floating off into the cabin. The first meal of this type tried was the Christmas dinner of turkey and gravy and cranberry sauce served to astronauts Borman, Lovell and Anders on Apollo VIII.

CONCEPT V

Local state, federal and international agencies assist the individual family, and community in meeting their responsibilities for nutritional health.

BEHAVIORAL OBJECTIVE

The student should be able to list two examples each of local, state, federal and international agencies having a responsibility in nutrition to the public and describe two of their nutritional activities.

SUGGESTED ACTIVITIES

Invite your local extension agent, public health nurse, or dietitian/nutritionist to discuss community resources in nutrition.

Using the local library, have students conduct a survey of organizations involved in nutritional activities.

Discuss the need to be informed citizens in the area of nutrition. The class can write to a Senator or Congressman for information on bills now pending in Congress which affect food programs.

Write to the Federal Nutritionist or Consumer Specialist within DHEW, USDA and FDA for a listing and description of current programs having a nutrition component.

Contact School of Home Economics (nutrition section) at U. of M. and M.S.U. regarding information on nutrition careers.

CONCEPT VI

Many careers exist in nutrition-related fields.

BEHAVIORAL OBJECTIVE

Student will be able to list ten professions directly involved in nutrition and ten professions related to nutritional care.

SUGGESTED ACTIVITIES

Invite several local professional persons involved with nutrition to give a panel presentation to the class on the career opportunities in nutrition-related fields. Such a panel might involve a dietitian from a local hospital, a Cooperative Extension Home Economist, a nutritionist from the Public Health Department, a home economist from the Department of Social Services, home economics teacher or others as locally appropriate.

Write to the following professional organizations for audio-visual materials and pamphlets on nutrition careers:

American Dietetic Association
620 No. Michigan Avenue
Chicago, Ill. 60611

American School Food Service Assn.
4101 E. Iliff
Denver, CO 80222

American Home Economics Assn.
1600 20th Street N.W.
Washington, D.C. 20009

Have students prepare a panel discussion on the various nutrition careers available.

RESOURCES

BOOKS

Nutrition Education in Action — A Guide for Teachers. Ethel A. Martin. Holt, Rinehart, and Winston, Inc., New York, 1963.
To be used with Textbook, **Nutrition in Action,** for students and teachers of elementary education. An excellent aid for in-service training in nutrition education. 135 pp.

Nutrition in Action, Ethel A. Martin. Holt, Rinehart, and Winston, Inc., New York, 1965.
Good introductory college text for students with limited scientific background. 298 pp.

Films, filmstrips, available from State Department of Health and Environmental Sciences.

FILMSTRIPS

American Bakers' Association

Food We Eat, The. Story of two youngsters traveling (moving) across the country. On their trip, they see where their food comes from (fruits, vegetables, dairy farm, food animals, and wheat). Trip to supermarket and meal planning included. Grades Kindergarten, One, Two.

What's in Our Food. Story of two children — their reasons for growth based on four basic food groups. Explains the terms: fats, protein carbohydrates, mineral, and vitamin. Illustrates the foods that supply these nutrients. Grades Three, Four.

Cereal Institute, Inc.

Skimpy and a Good Breakfast. Thirty-seven frames with captions in color. Breakfast chart and elementary teacher's guide sent with filmstrip. (Also available with Spanish, French, and German captions for beginning foreign languages classes.) Grades Three, Four.

Wheat Flour Institute

Judy's Family Food Notebook. Sixty frames with captions, teacher's guide. Color. Foods are presented according to four food group plan. Grades Three, Four.

KITS, ACTIVITY PIECES, AND MISCELLANEOUS

Florida Citrus Commission

Better Breakfast Cut-outs. Thirty-two food models in color and natural size for use on a flannel board. Includes teacher's script, **Better Breakfast on Stage,** as an introduction to its use. Bookmarks in classroom quantity may be requested. Grades Kindergarten, One, Two.

C is for Citrus. Master for making a monthly calendar to be filled in by students. Grades Kindergarten, One, Two.

Four Seasons. Master. Good aid for teaching daily need for citrus. Grades Kindergarten, One, Two.

Fun Cut-Outs. For use with poster, **The Citrus Family.** Classroom project — children create their own vitamin C family while learning about citrus fruits. Grades Kindergarten, One, Two.

Nutrition Ladder to Better Health, The. For use with poster of same title. Individual sliding ladders to demonstrate essential nutrients and their food sources. Grades Five, Six.

Orange Clock, The. Master. Die-impressed face of clock on a half of orange. Good aid for teaching the importance of citrus fruit, numbers, coloring, and telling time. Grades Kindergarten, One, Two.

Word Picture of Florida Citrus. Master. Shows many aspects of the citrus story in words and pictures. Grades Kindergarten, One, Two.

National Livestock and Meat Board

Elementary School Nutrition Kit. Includes twenty-four-page child's reader, illustrated in color; work folder, **My Daily Food Record;** and a teacher's manual. Grades Three, Four.

PAMPHLETS

American Dietetic Association

Understanding Food Patterns in the U.S.A. A compilation of food patterns of cultural and ethnic groups in the U.S.A. A good teacher's reference. All grades.

American Home Economics Association

Entertaining, Foreign Visitors. India, Japan, Israel — hints for hospitality do's and don'ts for conversation, food, entertainment, Grades Five, Six.

Family Holidays Around the World. Entertaining, informative accounts of festivals, feasts, and customs of families of the world. Description of more than fifty holidays in thirty countries. Some recipes included. Grades Five, Six.

American Institute of Baking

Bread in the Making. Story of a trip through a bakery. Explanation of terminology used. Fifteen pages. Grades Three, Four.

Cereal Institute, Inc.

Better Breakfast Activities. Breakfast unit; teacher's guide. Includes breakfast and cereal information and suggests learning experiences. Sixteen pages. Grades Three, Four.

Good Grains, The. Teacher's guide. Includes cereal grain and breakfast information, and suggests learning experiences. Eight pages. Grades Three, Four.

Florida Citrus Commission

A Bright Smile Is to Keep. Colorful folder on dental care. Includes list of right foods to eat daily, together with good snack choices, with emphasis on citrus. Grades Three, Four.

Get Aboard the Good Ship Vitamin C. Cartoon illustrations in color relating history of citrus and vitamin C. Grades Three, Four.

United Fresh Fruit and Vegetable Association

Jane and Jimmy Learn About Fresh Fruits and Vegetables. Shows ways in which fruits and vegetables fit into the diet. Can be used to familiarize students with a variety of fruits and vegetables; improve reading skills; and as a coloring book. Grades Three, Four.

Good Foods Coloring Book, The, P.A.-912. Attractive booklet showing four basic food groups, food sources of each, and how each source is used in the diet. Teaches good food selection; coloring; and reading. Large print. Available in English and Spanish. Grades Kindergarten, One, Two.

Learning Science Through Cooking — by Barbara Davis, Sterling Publishing Company, Inc., 419 4th Avenue, New York, N.Y. 10003. Grades K-6.

POSTERS

Cereal Institute, Inc.

A Basic Breakfast Pattern. Breakfast unit. Illustrates foods for a basic breakfast. Designed so that it may be cut out, pasted on cardboard, and used as a mobile. (16" x 22") Grades Three, Four.

Grains — Origin of Breakfast Cereals. Colorful illustrations of barley, corn, oats, rice, and wheat; cross sections of grain kernels with structural parts identified. (16" x 22") Grades Three, Four.

Florida Citrus Commission

Citrus Family, The. Fun illustration in color of grapefruit, orange, and tangerine. (18" x 25") Grades Kindergarten, One, Two.

Good Breakfast Is Fun, A. Colored illustration of three children eating a variety of foods for breakfast, with emphasis on citrus. (18" x 25") Grades Kindergarten, One, Two.

Nutrition Ladder to Better Health, The. Colorful poster showing essential nutrients, good food sources, and primary functions of each. Individual sliding ladders to visually demonstrate essential nutrients and their food sources are available for students upon request. (18" x 25") Grades Five, Six.

You Need These Foods Daily for Good Health. Depicts basic four food groups, in color, superimposed on a cut half of orange. (18" x 25") Grades Three, Four.

We Help You Keep Fit. Colored illustration of citrus fruits with a catchy jingle; functions of vitamin C. (18" x 25") Grades Kindergarten, One, Two.

ADDRESSES FOR FREE NUTRITION MATERIALS

American Bakers' Association
20 North Wacker Drive
Chicago, Illinois 60606

American Can Company
230 Park Avenue
New York, New York 10000

American Dairy Association
20 N. Wacker Drive
Chicago, Illinois 60606

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

American Home Economics Association
1600 Twentieth Street, N.W.
Washington, District of Columbia 20009

American Institute of Baking
400 E. Ontario Street
Chicago, Illinois 60611

American Molasses Company
120 Wall Street
New York, New York 10005

Armour and Company
Consumer Service Department
Union Stock Yards
Chicago, Illinois 60690

Borden Company
The Borden Building
350 Madison Avenue
New York, New York 10017

California Dried Fruit Research Institute
1 Drumm Street
San Francisco, California 94111

Can Manufacturers Institute, Inc.
60 East 42nd Street
New York, New York 10017

Carnation Company
Box 2035 Wilshire LeBrea Station
Los Angeles, California 90036

Cereal Institute, Inc.
135 South LaSalle Street
Chicago, Illinois 60603

Evaporated Milk Association
910 17th Street N.W.
Washington, D.C. 20006

Florida Citrus Commission
Institutional and School Marketing Dept.
Lakeland, Florida 33802

General Foods Corp.
Consumer Service Dept.
250 Park Avenue
New York, New York 10000

General Mills, Education Section
9200 Wayzata Blvd.
Minneapolis, Minnesota 55440

Gerber Products Company
445 State Street
Fremont, Michigan 49412

Kellogg Company
Department of Home Economics Services
Battle Creek, Michigan 49016

Metropolitan Life Insurance Company
Health and Welfare Division
1 Madison Avenue
New York, New York 10010

National Dairy Council
111 North Canal Street
Chicago, Illinois 60606

National Livestock and Meat Board
Department of Nutrition
36 South Wabash Avenue
Chicago, Illinois 60603

National Macaroni Institute
139 North Ashland Avenue
Palatine, Illinois 60067

Pet Milk Company
Home Economics Department
Arcade Building
St. Louis, Missouri 63101

Poultry and Egg National Board
18 South Michigan Avenue
Chicago, Illinois 60603

Quaker Oats Company,
Home Economics Department
Merchandise Mart Plaza
Chicago, Illinois 60654

Sunkist Growers Inc., Dept. 11601
Box 78888
Van Nuys, California 91409

United Fresh Fruit and Vegetable Association
777 14th Street, N.W.
Washington, District of Columbia 20005

United States Department of Agriculture
Government Printing Office
Washington, District of Columbia 20402

Wheat Flour Institute
309 West Jackson Boulevard
Chicago, Illinois 60606

SMOKING AND HEALTH

Rationale for Unit: Until the surgeon general's report on Smoking and Health was published and research showed conclusive evidence that "smoking is dangerous to your health," smoking was a practice that one could take or leave without much concern that it might present any critical risk to one's health or life.

There appears to be little doubt today that lung cancer is directly associated with cigarette smoking. Other health problems which share a relationship with smoking include heart disease, bronchitis, emphysema and chronic disability.

It has been estimated that about 2/3 of the men and 1/3 of the women in the United States smoke. Cigarette consumption has increased per person in the last decade in spite of repeated warnings and increased research which links cigarette smoking to health problems.

Most often, the smoking habit begins in the early teens, the indication being that one of every four teenage boys and one of every eight teenage girls smokes cigarettes. Boys seem to be heavier smokers and this ratio seems to remain constant in adult life.

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association resolved "That schools, physicians, health departments, and other community agencies cooperate in an aggressive program designed to discourage children from starting the smoking habit and to influence youth who are smoking to discontinue the habit."

Sound educational techniques which prepare a student to make intelligent and responsible decisions concerning his behavior and health have an important part in supporting the above resolutions.

Basic Concept of Unit: There is substantial evidence that smoking, particularly cigarette smoking, is harmful to health. Individuals must be aware of and understand the health hazards associated with smoking so they can make an intelligent, personal decision on whether to smoke or not to smoke.

CONCEPT	SUGGESTED LEARNING ACTIVITIES
Kindergarten-Third Grade Levels	
People smoke or refrain from smoking for a variety of reasons.	1. Consider the reasons parents give for smoking. 2. Survey parents on their attitudes concerning smoking. a. do you think smoking is harmful? b. do you approve of young people smoking? c. do you think you could stop smoking? d. have you tried to stop smoking? e. do you wish you never started smoking? 3. List the advantages and disadvantages of smoking. 4. Discussion: Do you have to smoke when you are an adult? 5. Create posters illustrating the disadvantages of smoking.
Cigarette smoking is harmful to the body.	1. Discuss the effects of smoking on the body. a. lung cancer b. heart rate c. shortness of breath d. appetite e. irritation of the nose and throat f. life span 2. Have pupils write to the Cancer, Heart and Lung Associations for smoking literature. 3. Pupils make charts showing the incidence of lung cancer in smokers and non-smokers.
Lung cancer and other chronic diseases are found more frequently among smokers than non-smokers.	1. Have a doctor discuss the relationship of lung cancer and other chronic diseases to smoking habits. 2. Discuss the detrimental effects of smoking and the relationship with heart disease, peptic ulcer and chronic bronchitis.

3. Discuss: Is smoking worth all of the risks involved?

Smoking advertisements affect youth in many different ways.

1. Have pupils explain their feeling and understanding of smoking advertisements.
   a. relate the benefits of smoking in magazine ads that are sponsored by tobacco companies.
   b. do advertisements tell one to smoke?
   c. discuss the smoking advertisements on TV and radio that stress the detrimental effects of smoking (American Cancer Society; American Heart Association).

Fourth-Sixth Grade Levels

Smoking is a dangerous habit that is very difficult to change.

1. Survey adults' and teenagers' reasons as to why they do or do not smoke.
2. Explain why the smoking habit is so difficult to break.
3. Discuss why young people should not smoke.
4. Survey the opinions of parents, friends, doctors, coaches as to why they approve or disapprove of young people smoking.
5. Discuss the main factors contributing to the onset of the smoking habit; identification with smoking parents, adult thumb sucking.
6. Develop a vocabulary relating to smoking and lung cancer.
7. Report on the effect of nicotine and tars on the lungs.

Along with a great increase in smoking in the last 25 years, there has been a corresponding increase in lung cancer.

1. Construct a graph showing the lung cancer death rate of cigarette smokers and non-smokers for the past 25 years.
2. Discuss the risk of getting lung cancer after one gives up smoking.
3. Make a chart showing the lung cancer cure-rate.
4. Compare the risks of pipe, cigar, cigarette smokers and non-smokers in developing lung cancer.
5. Construct a graph showing the incidence of lung cancer for non-smokers, one pack-a-day smokers, and two packs-a-day smokers.
6. Discuss the effect of inhaling while smoking.

Diseases other than lung cancer are found more commonly among cigarette smokers than non-smokers.

1. Write to the American Cancer Society asking for information showing the relationship of smoking with coronary heart disease, emphysema, pulmonary bronchitis, and stomach ulcers.
2. Class reports and discussion on the above activity.
3. Create cartoons, slogans, posters, jingles relating to the detrimental effects of smoking.

Smoking interferes with many of the body processes.

1. Report on the effects of smoking on:
   a) appetite
   b) nervous excitement and relaxation
   c) shortness of breath
   d) loss of weight
   e) heart rate and blood pressure
   f) body temperature
2. Invite a physician to speak on the effects of tobacco on the body.

Cigarette smoking is an expensive habit.

1. Estimate the cost of smoking one pack of cigarettes a day for a week, a month, and for a year.
2. Emphasize that careless smoking habits can result in great loss to timber, wildlife and recreation areas.
3. Discuss the fire hazards that are caused by careless smoking habits.

Tobacco advertising is sometimes misleading.

1. Discuss the appeal of smoking advertising and the effect on causing young people to start the smoking habit.
2. Explain the use and effectiveness of cigarette filters.
3. Tape or bring smoking advertisements to class and evaluate them.
4. Display anti-cigarette posters developed by the American Cancer Society, American Heart Association and the National Tuberculosis Association.
5. Discuss the anti-smoking commercials on television and radio.

Smoking can affect the performance of an athlete.

1. Invite one of the school's athletic coaches to explain why athletes should not smoke.
2. Display posters from the American Cancer Society — "I don't smoke" series. (Pictures of well known athletes.)

Government legislation requires cigarette manufacturers to warn the public of the risks of cigarette smoking.

1. Display an empty cigarette package on a poster and identify the smoking warning, "Caution: Cigarette Smoking May be Hazardous To Your Health."

Smoking is a difficult habit to break.

1. Discuss why the smoking habit is difficult to break.
2. Have guest speakers talk to class telling of their problems in breaking the smoking habit.
3. Have an ex-smoker discuss the value of quitting the smoking habit.

Seventh-Ninth Grade Levels

There is no single explanation for smoking behavior.

1. Discuss the early use of tobacco by the American Indians, the Europeans, and the present-day use of tobacco products.

2. Bring in current newspaper and magazine articles discussing the use of tobacco products and its consequences.
3. List reasons why people do or do not smoke. Are they compelling?
4. Have a committee of students conduct a survey of the opinions of parents, friends and coaches, on the use of tobacco by teenagers.
5. Survey classes to determine the smoking attitudes and habits of students.
6. List the benefits derived from smoking.
7. Discuss:
   a) how to refuse a cigarette
   b) how does your smoking affect others at a meeting or social function?
8. Buzz session: Should teenagers smoke?
9. Report: What do excessive smokers and drinkers have in common?
10. Investigate the state laws regarding the sale and use of tobacco products. Are these laws enforced?

The body processes are affected by smoking habits.

1. Describe the immediate effects of smoking on the respiratory, circulatory and the digestive systems.

Cigarette smoking is causally related to lung cancer in men.

1. Identify and examine the contents of a cigarette.
2. Explain the effects of nicotine on the body.
3. Report on the carcinogens found in the tar residues of cigarette smoke.
4. Chart the incidence of lung cancer found in cigar, pipe, cigarette smokers, and non-smokers.
5. Discuss: If one smokes and does not inhale, is he safe from lung cancer?
6. Research: The number of school children that will die of lung cancer before they reach the age of 70.
7. Research and report on the following study: SMOKING AND HEALTH, by the U.S. Public Health Service.
8. Make a poster indicating the brand names of cigarettes, nicotine content, and the effectiveness of brand filters.
9. List the types and effectiveness of cigarette filters. Discuss why filter-type cigarette ads are an admission that cigarette smoking is harmful.
10. Have a student relate the experiences in smoking his first cigarette.
11. Chart the lung cancer death rate for the past 10 years. Include the following groups: never smoked, less than 1 pack per day; ½-1 pack per day, 1-2 packs per day; 2 or more packs per day.
12. Show photomicrographs of cancerous and non-cancerous lung tissue.
13. Discuss the treatment and prevention of lung cancer.
14. Explain how tars from cigarettes affect the membrane of the respiratory tract.

15. Discuss: The reasons for Congress passing a law requiring cigarette companies to print a warning on each pack of cigarettes: Caution: Cigarette Smoking May Be Hazardous to Your Health.
16. Prepare radio and television commercials giving scientific facts on smoking and lung cancer.
17. Buzz session: Is there any real value in knowing the symptoms of lung cancer?
18. Discuss the cause of the poor recovery rate of lung cancer victims. What is the reason for the public's apathy toward this?
19. Student essay: I choose to smoke or not to smoke because . . .
20. Display anti-smoking posters.
21. Debate: Does smoking relieve tension?
22. Discuss: The adolescent years are the most formative for developing patterns for adulthood. It is crucial that teenagers make mature decisions based on scientific facts as to whether they should or should not smoke.

Chronic bronchitis, pulmonary emphysema, cardiovacular disease are found more commonly in cigarette smokers than non-smokers.

1. Investigate the effect of cigarette smoking on chronic bronchitis, cardiovascular disease, peptic ulcer, and emphysema.
   a) compare smokers and non-smokers, mortality and morbidity rates.
   b) specific effects caused by smoking
   c) treatment
   d) prognosis
2. Invite an inhalation therapist to discuss his role in treating respiratory diseases. Would he advocate the use of tobacco products?
3. Report on the relationship of cigarette smoking and heart disease.
4. Report on the physical ills or symptoms more frequently associated with smokers than non-smokers (coughing, shortness of breath, loss of appetite, and weight loss). Relate this to the degree of inhalation and frequency of smoking.

Millions of dollars are spent annually to influence the smoking habits of the public.

1. Compare the amount of money spent annually in the U.S. for smoking, education, recreation, welfare and hospitalization.
2. Tape radio and television smoking commercials and discuss them in class (type of appeal, age groups).
3. Discuss: The possible harmful and injurious effects of smoking are never referred to in smoking advertisements by tobacco companies.
4. Discuss the efforts of anti-cigarette advertising to counterbalance the barrage of advertising by the cigarette industry.
5. Debate: Cigarette advertising is aimed primarily at youth.

Smokers can learn to live without cigarettes.

1. Report on the activities of local smoking withdrawal clinics.
2. Guest speaker: Testimonial of the withdrawal experiences of an ex-smoker.

3. Essay: Have students discuss — substantiate their decision — to smoke or not to smoke.

Tenth-Twelfth Grade Levels

The reasons for smoking seem to be related to a range of diverse psychological and sociological behaviors which may be set off by different personal needs.

1. Discuss and evaluate the reasons given for smoking.
2. Debate: The beneficial effects of smoking in the area of mental health.
3. Consider the case of total abstension.
4. List the factors influencing adolescent smoking habits — consider peer group pressures, emulation, peer status, pleasure.
5. Discuss the reasons given for being a non-smoker.
6. How does one smoking affect others around him?
7. Debate: Have a group of smokers and non-smokers debate the pro's and con's of smoking.
8. Discuss: What constitutes the smoking habit? Smoking addiction?
9. Discuss the forces existing in society that encourage smoking — psychological motives, social pressures, advertising media.
10. Research: Ascertain the effect of family relationships on influencing smoking habits.
11. Make a list of the social disadvantages and advantages (if any) of smoking. Consider cost, discoloring of teeth and fingers, breath; fires, cause of automobile accidents and imposition on others.
12. Investigate vocations and professions where smoking would be a handicap.
13. Explain how smoking becomes a habit.
14. Report on the consumption of cigarettes in the U.S. for the past 20 years. Consider sex and age.
15. Interview friends, parents, and professional people to find out how and why they started smoking.
16. Develop a questionnaire for a school survey on smoking attitudes and habits. Publish the results in the school newspaper.
17. Research: Trace the history of smoking.
18. Report on the anti-smoking crusades and their effect on smoking habits. Include King James I, P.T. Barnum, Horace Mann, Henry Ward Beecher, and Horace Greeley.

The components of tobacco and its by-products are many.

1. Build a smoking machine and collect coal tar and nicotine in a cigarette holder.

Smoking directly affects many of the body functions.

2. Using the smoking machine, place a goldfish or guppy in the first gallon container, and observe the effects of dissolved nicotine in the water on a living organism.
3. Reports by students on the contents of cigarette smoke and their effect on human tissue; consider tars, nicotine, carbon monoxide, methyl alcohol, ammonia and arsenic.

1. Review studies and experiments comparing the physical ability before and after smoking in terms of temperature, pulse, blood presssure, vital capacity and muscular coordination and respiration.
2. Have a physician discuss the effects of smoking on exercise and physical fitness.
3. Have a qualified athletic coach discuss the training habits of athletes.
4. Report on the effects of smoking on the respiratory system (inflamed throat, coughing, chronic hoarseness and paralysis of the cilia, shortness of breath).
5. Report on the effects of smoking on the circulatory system (speed up the heart rate, constriction of blood vessels, lowering skin temperature of the hands and feet).
6. Report on the effects of smoking on the digestive process (organs of taste less sensitive, increased secretion of gastric juices, loss of appetite, loss of weight).
7. Research and discuss the findings of the American Medical Association Committee on Sport Medicine on the effects of smoking and athletic performance.
8. Discussion: Does smoking relieve tension?
9. Research: Determine the effects of smoking on growth.

Cigarette smoking is causally related to lung cancer in men. The risks increase with the duration and number of cigarettes smoked per day.

1. Review the trends since 1920 concerning the increase in tobacco consumption.
2. Construct a chart showing the increase in morbidity and mortality rates of lung cancer in men and women for the last 10 years.
3. Discuss the implications of the report made by the U.S. Public Health Service in 1964, SMOKING AND HEALTH.
4. Report on the American Medical Association's stand on smoking.
5. Post and report on magazine articles discussing research that is being conducted relating to the treatment and cure of lung cancer patients.
6. Exhibit anti-smoking posters obtained from the American Cancer Society (famous athletes).
7. Discuss the effectiveness of cigarette filters.
8. Make a poster listing the cigarette brands and their nicotine and tar contents (with and without filters).
9. Research and discuss: Does smoking more and inhaling deeply increase the odds relating to premature death?

10. Research, report and develop charts indicating the risk of developing lung cancer:
    a) in men and women
    b) for pipe, cigar, or cigarette smokers and non-smokers.
    c) compare cigarette smoking and occupational causes of lung cancer.
    d) compare the duration and the number of cigarettes smoked per day.
11. Diagram the respiratory system and indicate the specific areas and functions affected by lung cancer, emphysema and chronic bronchitis.
12. Discuss: Is there a safe number of cigarettes one can smoke?
13. Have a thoracic surgeon report on the reasons for the low lung cancer cure rate (1 in 20).
14. Research: Diagnosis of lung cancer by bronchoscopic exploration, aspiration biopsy, biopsy, X-ray.
15. Compare the relationship of lung cancer with cigarette smoking in the United States and European countries.
16. Have a physician discuss the various treatments, techniques and rehabilitation used in treating and caring for lung cancer patients.
17. Display pictures of lung cancer treatment techniques (surgery, radium, cobalt, chemo-therapy).

The mortality rate of cigarette smokers over non-smokers is particularly high for a number of other diseases including chronic bronchitis, emphysema, cancer of the larynx, oral cavity, esophagus, peptic ulcers, and heart and circulatory disease.

1. Report on the following aspects concerning chronic bronchitis, emphysema, cancer of the larynx, oral cavity, esophagus, peptic ulcers, and heart and coronary disease.
    a) incidence and trends of smokers compared with non-smokers.
    b) effects of cigarette smoking — duration and consumption.
    c) prognosis.
    d) recovery statistics.
    e) research.
    f) detection.
    g) prevention.
2. Invite an inhalation therapist to discuss his role in treating respiratory diseases. Relate his feelings concerning risks of smoking.
3. Panel Discussion: The effects of smoking on the human body. The panel should include a physician, inhalation therapist, thoracic surgeon, psychologist, cancer researcher.
4. Report on the effects of smoking on expectant mothers and the relationship to infant child weight.

Mounting evidence from various sources indicates that smoking contributes to mortality from certain specific diseases and to the overall death rate.

1. Examine and discuss the report on HEALTH AND SMOKING by the Surgeon General's Advisory Committee, (1964).
2. Summarize the findings of the smoking report made by the Royal College of Physicians of London — SMOKING AND HEALTH (1962).
3. Report on the DOLL-HILL STUDY, British physicians over age 35 smoking 25 cigarettes per day have a death rate nearly 40 times greater than non-smokers.
4. Report and discuss THE HAMMOND-HORN STUDY. A.C.S. study of over 187,000 men ages 50-69.
5. Report on the DORN STUDY. A study of 249,000 veterans. (Redbook magazine, 1960).
6. Familiarize the class with the American Cancer Society's research program in the field of smoking and health.
7. Research: Report by the National Center for Health Statistics on the relationship of cigarette smoking to morbidity and disability as reflected by 42,000 American households for the year ending 1965 (ACS).

Intoxicating drugs are smoked in the form of crude cigarettes.

1. Have a doctor speak to students concerning the use and effects produced by marijuana cigarettes.
2. Discuss the risks associated with the smoking of marijuana.

Smoking is an expensive as well as a dangerous habit.

1. Estimate the amount of money one could save by not smoking a pack of cigarettes a day for one year, five years, or until retirement.
2. Report on the cost of treatment and rehabilitation of those with diseases relating to smoking.
3. Investigate the costs imposed on society by careless smoking habits (fires, automobile accidents, dental care).

Many states have laws and regulations concerning the sale of tobacco products.

1. Discuss the effectiveness and enforcement of the state laws covering the sale and use of tobacco.
2. Buzz session: Are school smoking regulations necessary? Are they enforced?
3. Debate: Cigarette taxes should be used for Health and Smoking Education.

There are economic and other reasons for research efforts designed to maintain the tobacco industry and produce a cigarette that is not harmful to health.

1. Consider the tobacco industry and its effect on the nation's economy — employment, risk of disease and wage losses, loss of life, hospitalization.
2. Report: Tax revenue earned by the State and Federal Government from the sale of tobacco products.
3. Indicate the type of research carried on by the tobacco industry.
4. Discuss how research can protect the smoker against himself.
5. Discuss the role that tobacco plays in our advertising economy today.

Federal legislation has required cigarette manufacturers to warn the public of the risks of cigarette smoking.

1. Bulletin board: Display an empty cigarette package (poster form) bearing the legend "Caution: Cigarette Smoking May be Hazardous to Your Health."

2. Discuss the Federal Legislation passed by President Johnson in July, 1965 requiring cigarette manufacturers to warn the public of the risks of cigarette smoking.
3. Report on the Magnuson-Kennedy Bill introduced in the U.S. Senate in 1967 requiring the listing of tar and nicotine content on cigarette packages and in advertising. In the House, Congressman Moss and 42 others sponsored a similar bill.
4. Discuss the Federal Communication Commission "fairness doctrine" ruling of June, 1967. This ruling applied the "fairness doctrine" to cigarette advertising via radio and television. The broadcasting companies are responsible to present the warning side of the smoking issue to the public.
5. Discuss the effectiveness of the anti-smoking commercials given on radio and television.
6. Discuss: The FTC and the U.S. Public Health Service have recommended that the Cigarette Labeling and Advertising Act should be amended to read: "Warning: Cigarette Smoking is Dangerous to Health and May Cause Death from Cancer and other Diseases."

Cigarette advertising is not always accurate and is often misleading.

1. Study the effects of advertising on consumer demand.
2. Buzz session: Cigarette advertising is primarily concerned with youth.
3. Discuss: The possible harmful effects of smoking are never referred to by tobacco companies.
4. Compare the techniques of smoking advertisements:
   a) testimonials of athletes.
   b) gift coupons.
   c) "average" smoker pictures.
   d) filters.
   e) virile maturity.
5. Report: In "Cigarette Country," television commercials portray handsome, healthy men and lovely smiling girls. Report on reality of Cigarette Country from articles written by people who have been there. Refer to "They've Never Been to Seven East," Christian Herald, October 1967.

Freeing oneself from the smoking habit involves the effective use of physiological and psychological information and devices.

1. Report: U.S. Department of Health, Education and Welfare, GUIDELINES TO HELP AN INDIVIDUAL STOP THE SMOKING HABIT.
2. Identify and discuss smoking withdrawal programs in your community and the techniques used.
3. Attend a session of the anti-smoking clinics.
4. Develop ways and means to stop the smoking habit permanently. Draw upon observations and experiences.

5. Have an ex-smoker of long standing report to the class concerning his experiences in quitting the smoking habit.
6. Have an ex-smoker describe the beneficial effects derived from quitting the smoking habit.
7. Discuss the use of the following technique in freeing oneself from the smoking habit — the avoidance of smoking situation, substitution for smoking through control, and delaying tactics.
8. Theme: Have students write a short paper based on their decision to smoke or not to smoke.

ALCOHOL AND HEALTH

Rationale for Unit: Man's apparent propensity for hedonistic behavior — his desire to alter reality in a quest for happiness and pleasure — very often has led to increased use of alcoholic beverages. The mood-altering and pleasure-enhancing properties of alcohol in its various commercial forms has placed it in a lofty position of popularity in all socio-economic classes and in an ever-expanding position in the age continuum.

Alcohol has emerged, historically, as the most abused drug of all. Faced with stress situations, a great number of people tend to augment their coping mechanisms with alcohol. Various alcoholic beverages are easily obtained and readily accepted in our society and have become an important part in the social and economic mechanizations of our everyday living. The cocktail party, for instance, is quite commonplace in America today, providing breeding grounds for "social drinkers" and alcoholics.

Alcohol abusers shorten their life spans by about 10 years, although heavy users often end their lives quite prematurely from the deleterious effects of alcohol on major body organs or by death through violence or traffic accidents.

The abuse of alcohol will, in the future, force millions of people into a state of dependency and injure or kill other millions.

The challenge to the educator, therefore, is to help dispel the many myths surrounding alcohol. Another important charge is to help students make intelligent and responsible decisions regarding their present and future behavior regarding use and/or abuse of the drug, alcohol.

c) child neglect
d) respect for family members.

Investigate reports of the National Safety Council relating alcohol as a causal factor in motor vehicle accidents.

Discussion: Why do individuals who know how alcohol affects sensory perception still drive after they drink?

Alcoholism is now recognized as an illness which can be treated.

Reports: What is Alcoholism? What are the causes and signs? What are the methods used in treating alcoholics?

Guest speaker: The role of Alcoholics Anonymous in helping alcoholics.

Class discussion: What should be our attitude toward alcoholism?
a) alcoholics are sick
b) alcoholics can be helped
c) alcoholics need greater public assistance and support.

Seventh-Ninth Grade Levels

Ethyl alcohol is usually obtained from the fermentation of fruits and grains.

Reports: The methods used in producing alcoholic beverages:
a) brewing
b) distillation
c) fermentation

Alcohol has an effect on plant and animal tissue.

Experiment: Place a piece of bread in ethyl alcohol and observe changes at 2-3 minute intervals (avoid contact of skin with alcohol). Expected change: hardening of bread is due to replacement of water by alcohol.

Experiment: Do above experiment with a piece of raw meat.

Experiment: Demonstrate the normal activity of an insect to touch. Use forceps to handle insect. Pour alcohol over insect (do not submerge) and then observe the reaction of the insect to touch.

Discussion: Why is alcohol used as a preservative (killing of bacteria, dehydration)?

The blood stream carries alcohol directly to all parts of the body where it is received without change.

Explain how the body uses alcohol: consider absorption, oxidation in the cells and liver.

Bulletin board: Illustrate the various beverages and their sources.

Compare the nutritional elements found in a glass of milk, an ounce of whiskey and a bottle of beer.

Explain the uses of methyl alcohol in industry.

Display a beer, wine, and a whiskey glass and discuss the amount of alcohol contained in each glass.

Alcohol affects the body in many ways.

Consider and discuss the following progressive effects of alcohol:
a) loss of intelligent behavior (self-control, judgment, decision-making)
b) decrease in muscular control (reaction time, coordination)

c) influence on the sense organs (vision, hearing, equilibrium)
d) unconsciousness (decreased rate of breathing, heart action, body temperature)

Posters: Illustrate the medicinal uses of alcohol.

Report: Alcohol affects the body in direct relationship to the concentration of alcohol in the blood. Consider the following influencing factors: amount ingested, rate of drinking, volume of blood.

Explain the use of depressants and stimulants. Give examples of each.

Discussion: The only sobering effect of coffee is to produce a wide-awake drunk.

Reports: Long-term effects of the use of alcoholic beverages (malnutrition, damage to body organs, delirium tremens).

Social drinking is acceptable in many societies.

Identify drinking customs in the United States and in other lands.

Interview: Have a pupil committee interview a physician or local health officer concerning the benefits and adverse effects of alcoholic beverages.

Class discussion: Should I drink alcoholic beverages?

Collect advertisements from newspapers and magazines and determine their effect on youth.

Research: Alcoholic beverages have been used and abused throughout history.

The use of alcoholic beverages may result in personal, community, health and safety problems.

Discuss: What are the effects of problem drinking on family members?

Interview a member of the police department to find the effect of alcohol on the crime rate and the automotive accident rate in the community.

Consult reports by the F.B.I. indicating the number of crimes in the United States associated with alcohol.

Discuss newspaper accounts of accidents and crimes involving the use of alcohol.

Compare the amount of money spent for alcoholic beverages to the amounts spent on education, cancer, heart disease, and other health problems.

Determine the economic, social and physical costs of intoxication and alcoholism to the community, state, and nation.

Alcoholism is recognized as a disease which can be successfully treated.

Identify the attitudes of society toward alcoholics.

List the state agencies and private organizations which concern themselves with alcoholism.

Report: How does Alcoholics Anonymous help in the rehabilitation of alcoholics?

Discuss: Alcoholism concerns the effects of alcohol on the person and the conditions within the person which led to the excessive use of alcohol.

Research and report on the activities of the Alateen and the Al-Anon programs.

Tenth-Twelfth Grade Levels

Alcohol may be used in many ways to benefit as well as adversely affect mankind.

Review the uses of alcohol in industry and medicine.

Discuss alcohol in terms of its being a food and its nutritional value.

List and discuss the individual costs (medical, occupational, rehabilitation) related to immoderate drinking.

Conduct research on the following: Why do some people drink and others abstain from drinking? Consider the physical, psychological, legal, economic and religious reasons.

Alcohol affects the human body in many ways.

Have students do research on the physical properties of alcohol, and how alcohol (ethyl) is made.

Invite a physician to class to discuss the depressant effects of alcohol on the body and its parts.

Student reports: Differentiate between social drinking, drunkenness and alcoholism.

Have an athletic coach present his philosophy concerning drinking and athletic efficiency.

Discussion: What are the effects of "just a drink or two" on the behavior of an immature person at a prom or a football victory party?

Investigate the factors which may modify the possible effects of "just a drink or two" mood, food eaten, body weight, kind and strength of drink, speed of drinking, attitude, constitutional differences among individuals.

Research: Adolescents are affected more quickly and more severely by alcohol than adults. Why?

Compare the effects of alcohol on the body in the following progressive stages:
a) loss of intelligent behavior
b) decrease in muscular efficiency
c) influence on sense organs
d) unconsciousness

Research: Alcohol and medications. Describe the escalating or potentiating reaction in the human body when an alcoholic beverage is used in combination with drugs.

Continued excessive use of alcohol brings physical and mental deterioration.

Investigate and report on the following effects of excessive drinking:

a) resistance to disease
b) nutritional deficiencies
c) impairment of nervous and digestive systems

d) alcohol psychosis
e) longevity
f) heart and circulation
g) liver

The reasons for drinking or abstaining from drinking vary with each individual.

List the reasons teenagers give for drinking. Are they compelling reasons?

Have students answer the following: How will drinking help me to become popular, healthy, successful, a good marriage partner, and a successful parent?

Discuss drinking and abstinence considering the following factors:
a) desire for group approval and acceptance
b) family patterns
c) social customs
d) desire for relaxation and pleasure
e) boredom
f) appeals of advertising on television and in magazines.

Panel discussion: At what age should one be permitted to drink? Consider legal, social, and psychological aspects.

The sale and use of alcoholic beverages is controlled by law.

Arrange for a local health officer or law enforcement officer to discuss the State Liquor Code.

Class discussion: Does current legislation properly reflect what society desires? Does the present State Liquor Code satisfactorily control the sale of alcoholic beverages? Should teenagers be served alcoholic beverages in their home or in the home of their friends?

Write to the following State Departments for information to support discussions on legal and economic aspects of alcoholic beverages:

a) Liquor Division, Department of Revenue
b) Department of Health and Environmental Sciences
c) Department of Social and Rehabilitation Services

Immoderate use of alcoholic beverages is associated with social, family problems, automobile accidents and crime.

Research and discussion: How much of a problem exists concerning teenage drinking?

Discussion: Problem drinking and successful family membership appear to be incompatible.

List the problems suffered by a family if one member drinks immoderately.

Student essay: A drinking driver is an injudicious driver.

Class debate:

a) RESOLVED: Drinking in moderation is acceptable and not harmful.
b) RESOLVED: Drinking to any degree is harmful and should be prohibited by law.

Class reports: Problem drinking and crime.

Behavior of the average drinker can be correlated with the percentage of alcohol in the blood stream.

The heavy drinker and the chronic alcoholic create many of the social problems associated with the use of alcohol.

Medical science has classified alcoholism as a disease for which there is no specific cure.

The basic treatment of alcoholism is concerned with the alcoholic recognizing there is a problem and then trying to eliminate the cause of stress situations.

Interview a lawyer or judge to ascertain the procedures used to prosecute a person suspected of driving under the influence of alcohol.

Class report on the statistics provided by the National Safety Council and insurance companies to determine what proportion of traffic fatalities and offenses is directly related to the use of alcohol.

Research: Does drinking have any relationship to sexual promiscuity?

Discussion: The need for adolescents to meet personal problems, and not develop habits of hiding or masking them with the use of alcohol.

Small group discussion: Inexperienced drivers and inexperienced drinkers are a dangerous combination.

Construct a chart showing the effects of varying amounts of alcohol in the blood.

Certain states have set a blood-alcohol level of .15 percent as a legal limit for drunkenness.

a) Is .15 percent a safe and effective standard? What is Montana's standard?

b) List the advantages and application of the various devices used in determining blood-alcohol level (Alco-Analyzer, Sobermeter, Drunkometer, Breathalyzer, Intoximeter).

List and discuss the factors which determine the amount of alcohol that accumulates in the blood (rate of oxidation, rate of drinking, presence of food in the stomach, size of the person, and concentration of alcohol in beverages).

Discuss how the interpersonal relationships of the home and family are gradually destroyed.

Open discussion by students indicating a possible way of resolving difficulties caused by problem drinkers.

Determine the cost of alcoholism in terms of care, treatment, care of dependents, lost wages, accidents, crime, and rehabilitation.

Discuss how alcoholism differs from other diseases.

Report: Alcoholism is a problem within a problem. Consider the effect of alcohol on the person which lead to excessive use of alcohol.

Explore the various causes of alcoholism and its progression.

Identify the warning signs of chronic alcoholism.

Report: Vitamin deficiency diseases resulting from alcoholism (beriberi and pellagra).

Investigate and compare the neurotic conflicts of the alcoholic.

Individual research and reports on the various methods and techniques used in treating alcoholics:

a) psychotherapy

b) hypnotism
c) tranquilizing drugs
d) aversion treatment
e) social rehabilitation
f) Alcoholics Anonymous

The community is involved in the rehabilitation of alcoholics.

Familiarize the students with local, state and federal agencies giving aid to alcoholics.

Invite a member of Alcoholics' Anonymous to speak to classes concerning the function of this organization in helping alcoholics.

Report on the Rutgers Center of Alcohol Studies and its role in dealing with the alcohol problem in the United States.

Discussion: The community's overall approach to alcoholism and its control must involve the following:

a) informed public
b) an enlightened law enforcement system
c) courts and laws recognizing that alcoholics need help, not punishment
d) available hospital beds
e) social and health agencies offering help to families
f) willing physicians to treat alcoholics
g) clergymen aware of spiritual problems faced by alcoholics
h) school's objective approach to the teaching of the use of alcohol

Analyze the effectiveness of the Alateen and the Al-Anon program.

Alcohol affects our economy in many ways.

Consider the following factors in discussing the effects of alcohol on our economy:

a) employment provided in the manufacture and distribution of beverages
b) consumer costs
c) taxes received from the sale of alcoholic beverages
d) cost of alcohol related to accidents
e) welfare costs related to broken homes attributed to drinking parents
f) the illegal manufacturing industry

Prevention of alcoholism is a world-wide problem.

Trace the rate of alcohol-centered problems in the United States and selected foreign countries.

Review the national prohibition laws and their repeal.

Suggest ways of keeping alcoholics out of jails and keeping them in hospitals.

Summarize the role of the medical profession, the general public, formal education, and the individual in meeting the problem of alcoholism.

CONCEPT

Fourth-Sixth Grade Levels

Beverage (ethyl) alcohol is usually obtained from fermentation of fruits and grains.

The effects of alcohol on the body are related to body weight. The immediate effects of drinking are more pronounced in the immature bodies of young people.

Social drinking is acceptable in many societies.

Alcohol is used in many different ways in our society.

People drink for many reasons.

Immoderate use of alcohol may cause many personal and community problems.

SUGGESTED PUPIL ACTIVITIES

Reports: indicate the sources of the various alcoholic beverages.

Discuss the value of ethyl alcohol as food.

Discuss the effects of alcohol on personality (doing foolish things, acting silly, failing to follow moral standards).

Discuss the depressant effects of alcohol on muscular control, thinking, and ability to make decisions.

Have local policeman discuss the problems caused by drinking drivers.

Oral and written reports: The effect of alcohol in sports, driving an automobile, flying, and in occupational skills.

Scrapbook: Have pupils make a scrapbook to include pictures and articles concerning the problems created by the use of alcohol.

Bulletin Board: Illustrate and display pictures of accidents and other losses attributed to alcohol.

Discussion: How do the effects of alcohol on the human body wear off?

Investigate the use of alcohol on special occasions by different nationalities (at meals, celebrations, etc.).

Survey: Conduct a survey among pupils to find the kinds of alcoholic beverages that have been tasted (where and when).

Discuss the medicinal and industrial uses of alcohol.

Distinguish between ethyl and methyl alcohol.

Create posters: Uses of alcohol (preservative, disinfectant, drug).

Guest speaker: Why some people do not or should not drink.

List the reasons teenagers and adults give for drinking. Evaluate them.

Collect advertisements concerning alcoholic beverages and analyze them in class.

Discussion: Why would the following be interested in whether an individual would drink or not: family, church, government, liquor industry, welfare agencies, employers.

Debate: People who drink to excess are those who are unable to face their problems and are using alcohol as a means of escape.

Guest speaker (from welfare agency): Discuss the family problems related to alcohol:
a) financial
b) work efficiency

RESOURCES:

Division of Alcohol Services
State Department of Health
& Environmental Sciences
Helena, Montana 59601
Robert Solomon, Administrator

Alcoholics Anonymous
Local Unit

Alcoholism Information and Referral Center
324 Fuller Avenue
Helena, Montana 59601

Alcoholism Rehabilitation Association
324 Fuller Avenue
Helena, Montana 59601

National Council on Alcoholism
2 Park Avenue
New York, New York 10016

Licensed Beverage Industries, Inc.
Education Division
155 E. 44th Street
New York, New York 10017

American Council on Alcohol Problems
119 Constitution Ave., N.E.
Washington, D.C. 20002

North Conway Institute
8 Newbury Street
Boston, Mass. 02116

Rutgers Center of Alcohol Studies
New Brunswick, N.J. 08903

Public Affairs Committee
381 Park Ave. S.
New York, New York 10016

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